The Builder.

No. CCCXLI.

*SATURDAY, AUGUST* 18, 1849.

THE point which most impressed us during a perusal of the new Bill to amend the Buildings Act, brought in by Lord Carlisle,—or, as it is to be called, when passed, "The Metropolitan Buildings Act, 1849,"—is the great alteration made in the relative positions of the Official Referees and the Registrar.

To all who have been much in communication with these authorities it must have become painfully evident that there was great want of unanimity between the referees and the registrar—that an antagonistic feeling prevailed which could not fail to militate against the speedy and satisfactory discharge of the business of the office. A return of the number of awards made by the referees, since the date of the Supplemental Act that changed the referees from two to three, to which the registrar has refused to affix the seal, and which have consequently been sent to the Commissioners of Woods for adjudication, would show this in a singularly striking manner. Before the passing of the Supplemental Act, when there were but two referees, the registrar acted as a third referee, and the two opinions, where there was a difference, carried it against the one. The seal, so far as we can learn, was then seldom if ever withheld. Since that event, however, the position of the registrar, acting no longer as referee, has necessarily changed, and he has found it his duty to be much more particular in respect of forms, and is less often able to give effect to the award of the referees by affixing the seal. How far the registrar may have been right or wrong we have not now to inquire; we are simply stating the actual position of affairs at the office.

Under the existing Act the *referees* are appointed as the parties to superintend its execution, and to arbitrate on differences, "as well as to exercise, in certain cases, a discretion in the relaxation of the fixed rules and directions of the Act." The registrar is appointed that relaxations and proceedings may be duly recorded, and with power to withhold the seal from any award, or other document, until directed by the Commissioners of Woods, "if it shall appear to the said registrar that any such documents are contrary to law, or not complete in any of the requisite forms, or beyond the competence of the said official referees."

By the provisions of the new Bill, it will be seen that the *registrar* is made supreme and dominant, and the referees removed to the position of his clerks or assistants, with the duty of supervising all public buildings. Clause 70 says,—"for the purpose of providing for the determination of questions, and the adjudication of matters arising under this Act, be it enacted—

"That if any doubt, difference, or dissatisfaction arise between any persons whomsoever as to whether any matter or thing is subject to any of the provisions, rules, and directions of this Act, or as to which of such provisions, rules, and directions any matter or thing is subject to, or as to the true intent and meaning or effect of this Act in any case, or whether any matter or thing is or has been done contrary to any of the provisions, rules, and directions of this Act, or as to any matter whatever, whether involving questions of law or questions of fact, arising under or within the operation of this Act, or if any building owner or other person claim to execute any work or operation authorised or required by this Act, and the adjoining owner or other person whose consent thereto may be required shall not have signified in writing his consent to such work or operation, if any such adjoining owner or other person cannot be found, or cannot by reason of legal disability or other cause give such consent, or if it be not known who is the person having a right to give such consent, or if any person claim any special certificate which is required or authorised by any of the provisions, rules, or directions of this Act, then it shall be lawful for both or either of the parties concerned in any such case of doubt, difference, or dissatisfaction as aforesaid, or for any such building owner or other person, or for any person claiming any such special certificate as aforesaid, to refer any such matter of doubt, difference, or dissatisfaction, or any such claim, to *the registrar of metropolitan buildings*, by requisition in writing."

True, it goes on to say,—

"And if any such requisition relate to the structural sufficiency or stability of any building or part thereof, or of any work done or proposed to be done, or to the quality of materials, or work or workmanship, or to the nature of any business alleged to be dangerous, noxious, or offensive, or to the general line of buildings, or to the obstruction of light and air, or other injury alleged to be occasioned by any projection, or to the works necessary to be done to any party-structure, or the proper manner of executing works by this Act authorised to be done, or to the quantity of soil or ground or other parts of the premises of one owner which ought to be laid to the premises of another owner, or to the amount of the expenses of works, or to the amount of damage, loss, or injury done in any case, or to the alteration in the value of any premises in consequence of any works, or to any other matter whatever requiring the exercise of the professional knowledge, skill, or judgment of an architect or surveyor, then in any such case, where the question does not relate to any public building, it shall be the duty of the registrar to refer, *either generally or specially*, any such matters so requiring the exercise of the professional knowledge, skill, or judgment of an architect or surveyor as aforesaid, to *one* of the official referees, *or* if the matter of such question be a claim on the part of a building owner or other person to execute any work or operation authorised or required by this Act as aforesaid, and the district surveyor be not a party concerned, then to the *district surveyor*, to ascertain the facts and circumstances of the case in respect of such matter, and to certify upon such matter; and where the question relates to any public building it shall be the duty of the registrar to refer as aforesaid any such matter to the official referees, or two of them, to ascertain the facts and circumstances of the case, and to certify upon such matter."

But what then? The referee or the district surveyor having examined into the matter and reported his opinion to the registrar, the registrar, after seven days' notice to the parties of such report (if from the district surveyor), "shall dispose of the matters in reference, together with such matters incidental thereto or involved therein, either by one award or by several awards, as he may think proper, and in such award or awards shall make such determination, appointment, order, or direction, or give such consent or authority, as the case shall require."

More than that,—

"*If it appear to the registrar* that the matter of any requisition is such as not to require the exercise of the professional knowledge, skill, or judgment of an architect or surveyor as aforesaid, then it shall be lawful for him to dispose of the matters in reference to him, together with such matters incidental thereto or involved therein, either by one award or by several awards, as he shall think proper, and in such award or awards to make such determination, appointment, order, or direction, or give such consent or authority, as the case shall require, without the certificate of any district surveyor, official referee or referees as aforesaid."

So that, as we have said, the registrar for the time being will be supreme; he may call in anybody or nobody to advise him; take the advice or not, just as he pleases; and the referees are reduced to the position of his clerks or assistants.

The committee appointed by Lord Carlisle in 1847, to inquire into the desirability of amending the Act, were unanimous on two points,—the necessity of *lessening law-forms* and technical proceedings, and of giving the officers under the Act greater discretionary powers,—that is, empowering them to do what, according to the 80th section of the present Act, already quoted, they were appointed to do, but for which it seems no power was given them,—viz., "to exercise, in certain cases,* a discretion in the relaxation of the fixed rules and directions of this Act, where the strict observance thereof is impracticable, or would defeat the object of this Act, or would needlessly affect with injury the course and operation of this branch of business."

How the first of these recommendations would be carried out by the transformation of the board to which we have drawn attention, it is unnecessary to say: forms and technical proceedings would be multiplied without end: it would be a law-court, and all the advantages which were looked for on the establishment of the office, in the shape of prompt decisions and the legislation of practical men, would disappear.

As to the discretionary powers, clause 10 of the new Bill says,—

"That if any of the rules or directions of this Act be found to defeat the purposes of this Act, or needlessly to affect with injury the course or operation of any trade or business, or to obstruct the advantageous use or conversion of buildings, or to hinder the adoption of improvements or of expedients either better or sufficiently well adapted for accomplishing the purposes of this Act; or if in rebuilding any building already built, or in executing any work upon any such building, a full compliance with the rules and directions of this Act will be attended with injury, loss, or inconvenience; or if in any case any rules or directions of this Act be at variance with or prevent the due observance of the covenants, agreements, or conditions contained in any lease, or agreement for a lease, being of the nature of a building lease, made before the passing of this Act,"—

Then the person affected may ask a modification from the registrar, and the registrar is to obtain the opinion of the referees on the statement, and report it, with his own opinion, to the Commissioners of Woods, who may make the modification required; but this, it will be seen, goes little farther than clause 11 of the present Act.

The Bill proposes a novelty, in the shape of an attorney to be appointed to serve as agent on behalf of the district surveyors and of the official referees when acting in the supervision of public buildings. It is to be "the duty of the said agent to act on behalf of the district surveyors and on behalf of the official referees acting as aforesaid, in the conduct and management of all prosecutions and other proceedings before any justices, magistrates, or courts of law or equity, which any district surveyor or official referee is by this Act directed or authorised to conduct or take, and also to act on the part of the said surveyors or of the said

* These words, "certain cases," made the hitch which prevented the exercise of discretionary powers.

official referees acting as aforesaid in the conduct and management of all references under this Act in which any such surveyor or official referee acting as aforesaid shall be a party, or shall be officially concerned or interested, and generally to advise the said surveyors or official referees acting as aforesaid on all matters of law connected with the execution of their duties."

By way of remuneration, this agent is to receive a per centage on the aggregate amount of fees "which shall have become payable" to each district surveyor, and to the referees for public buildings. This arrangement would probably be advantageous to three or four litigious district surveyors, but whether it would be palatable to those who find law not only undesirable but unnecessary, remains to be seen. As it now stands, it would necessarily tend to increase litigation and its consequence, bad feeling. Moreover, he could not satisfactorily act for referees and district surveyors too.

The schedules seem an improvement on those attached to the Act now in force. All buildings (except public buildings) are declared to be of one class, and party and external walls of each rate are to be of one thickness, preventing any 9-inch party wall in a third-rate building, and allowing it in a fourth-rate for the uppermost two stories only. An additional half-square in area is allowed to fourth-rates; and the public have an advantage in the removal of public buildings altogether from the supervision of the district surveyors. This would not only save the public from the payment of two sets of fees for the same building, which the present Act enforces, but would avoid the annoyance to architects of having their buildings first surveyed and passed by the district surveyor, and then pulled to pieces by the official referees, who may take a different view of the provisions of the Act.

We have but opened the ball.

## ON THE NATURE AND PROPERTIES OF THE METALS USED IN THE BUILDING TRADES.

### CAST-IRON—MALLEABLE-IRON—STEEL.

HAVING already* noted the chief sources whence the almost universally-diffused, and all-important, metal, iron, is derived, we shall now proceed to treat more particularly of its nature and properties, and especially of its three chief varieties, or states, of cast-iron, wrought-iron, and steel.

The appearance, tint, or glance of iron, in whichever of its states we take it,—whether in all the glitter and glory of 'cold steel,' in the homely shine of the kitchen poker, or in the still more dusky hue of the common cast-iron articles of daily use, is so familiar to one and all, that it is only, of course, *pro formâ* that we need here note, that it is of a greyish white with a shade of blue, and capable of assuming, in its form of steel, so high a polish as to excel in splendour every one of even the 'nobler' metals, such as silver, gold, or platinum. In tenacity and strength, too, though not in malleability, or even in ductility, it can be made to excel all other metals. Yet it *is* capable of being rendered both extremely ductile and remarkably malleable. It can be drawn out into wires finer than human hair, and can be beaten into tolerably thin plates and ribbons. In short, as remarked by one of our standard authorities, in treating of those manifold uses of this most precious metal which are, or ought to be, known to every one,—"It is capable of being cast into moulds of any form; of being drawn out into wires of any desired strength or fineness; of being extended into plates or sheets; of being bent in every direction; of being sharpened, hardened, and softened at pleasure. It accommodates itself, in fact, to all our wants, desires, and even caprices; it is equally serviceable to the arts and sciences, to war and peace; the same ore furnishes the sword, the ploughshare, and the scythe, the pruning-hook, the needle, and the graver, the spring of the Geneva watch, or of the ponderous locomotive, the chisel, the chain, the anchor, the compass, the cannon, or the bomb."

But in speaking of its tenacity and its other simpler properties, we must be a little more explicit in detail. Its matchless tenacity in its other states than that of mere cast-iron is such, that a wire of wrought-iron, drawn out, by its extreme ductility, through orifices gradually diminishing in calibre down to the 0·787 part of a line in diameter, has been found capable of supporting a weight of about 550 lbs.; and a wire of tempered steel, according to Parkes, has been found to carry double the weight of an ordinary wire. One of British iron, an inch in diameter, and estimated, in relation to Swedish, only as 348·88 to 549·25, is stated by Murray to have sustained weights without breaking till raised to 25 tons 6 cwt. The tremendous strength of wire ropes may thence be all the more readily conceived. Invaluable as such properties are, however, there is another perhaps still more peculiar and practically important, namely—welding, which it, and it almost alone amongst metals, possesses, and that in high perfection. Were it not for this peculiarity, indeed, in which platinum amongst metals, and sodium amongst metalloids, alone at all resemble it, the great infusibility of wrought-iron would sadly diminish its vast utility. The metal when pure and malleable requires the highest temperature of a wind furnace to make any impression on its extreme infusibility. The fusing point of cast-iron even, which *will* fuse, ranges to 3480° Fahrenheit; and it is very doubtful whether at *any* temperature it can be made to boil, as many metals readily do. But wrought, or malleable, or fibrous iron, at a bright red heat, is soft and pliable, and, by hammering, will so interweave its fibres, those of one piece with those of another, as to become spliced, as it were, completely, into one continuous whole. Such is a feasible enough idea of the nature of welding. But it is, in fact, by a species of welding that the very *particles* of wrought-iron are first of all worked into mass as such. In that curious process, 'puddling,' cast-iron while fused in a proper reverberatory furnace, is stirred or puddled, and thus exposed to the air and flame till the whole mass heaves, burns blue, grows tough, less fusible, and actually falls at length into a *dry powder*. Then the fire is urged so that the pulverulent mass again *agglutinates* at the *welding* heat, and thus, as it were molecularly rewelded, is worked up into masses, and squeezed through rollers into 'malleable iron,' as afterwards and elsewhere more particularly pointed out. The oxides of iron, too, thus yield, with combustible or carbonaceous matter, in the furnace, a metallic spongy mass for subsequent compaction into malleable metal. Such, probably, was every where the earliest mode of treating iron ores, as, indeed, is still the case with ruder nations. But along with this agglutinative property, iron is equally singular in forming, at a high heat, that correlative compound with carbon—cast-iron, whence, again, the purer and more malleable metal is prepared by puddling, and by means of which the separation from the ore of every thing extraneous is facilitated.*

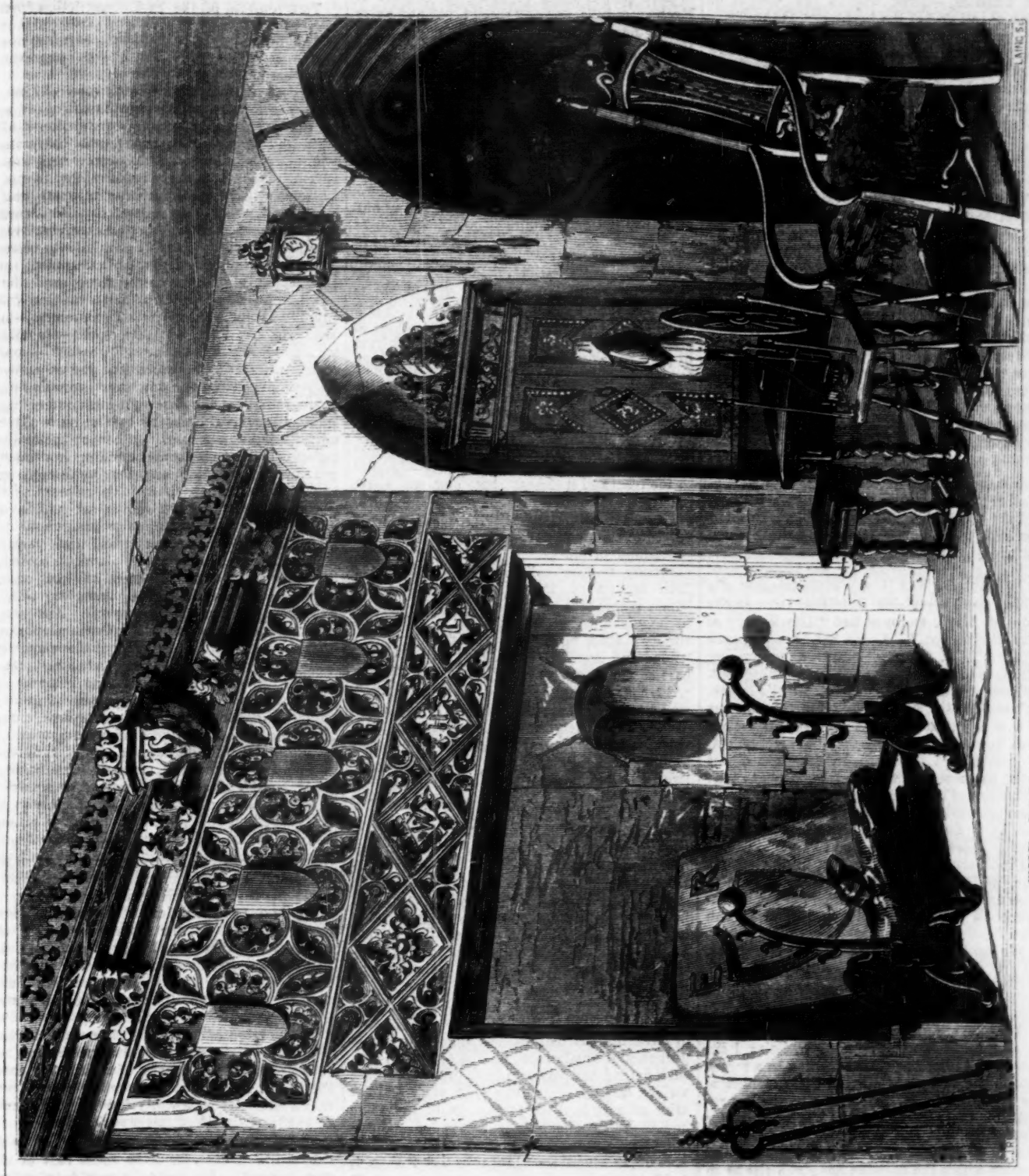
In connection with these peculiarities of iron, we may here note that it is well known that hammering long continued destroys that very malleability which it at first contributed so essentially to mature. Dr. Black suggested from this that the hammering, which we all know *will* evolve even red heat from cold iron, expelled too much of the heat latent in (or, as we may very properly term it, constitutional to) the malleable state of the iron, or to that state essentially necessary, and he accordingly conceived metals to possess malleability in proportion to their latent (or constitutional) heat. From some facts too related by Sir James Hall, it appeared that at certain temperatures, above the welding heats, all iron falls to pieces under the hammer, even as at first applied, or independently of long continuance, and that this happened at different heats in the different varieties of the iron of commerce,—in cast iron at about 15° Wedgwood,—in steel at 30°,—Swedish iron at 50° to 60°,—and Siberian at 100°. In estimating the respective degrees of tenacity in iron, and investigating other kindred peculiarities of a most interesting and practically important order, such facts might be of great use. It is very generally believed for instance, that mere long continued or reiterated vibration, or other continuous or recurrent motion, will, *in like manner with heat or hammering* as above, at length of itself destroy the tenacity or toughness of wrought-iron—a question, this, that cannot too soon be investigated and decided, in connection with a series of just such facts and experiments as those to which attention has now been drawn. The very fact itself, indeed, that so singular a change in iron as that from the ordinary to the *magnetic* state, can be induced by merely stroking, tapping, or other gentle percussion or friction, or even by the mere continued pressure of gravitation or magnetic posture in the sphere, may prove the proposed subject of investigation to be no idle or groundless one; for if hammering or percussion, heat, or even mere friction or pressure can produce changes so remarkable, so *may* vibration,—all of these, in fact, being merely different modes of subtle force, operative on, and *undermining*, or otherwise altering, the connections of the more or less minute particles, crystlets, polarcles, molecules, or atoms of the mass.

The texture of iron, like most of its other properties, varies much with its varieties of state, or with the methods of working it. Though, in bars, or wire, it seems to be longitudinally fibrous, yet when kept *long* red hot, it acquires a crystaline texture, and has a tendency to cuboidal fracture. This, too, doubtless, involves the nature of that very change which takes place in the undermining of its tenacity by *high* heat, even though not of *long* duration. The specific heat of wrought-iron is 0.11379 (Regnault); that of cast-steel, 0.11848; and that of cast-iron 0.12728.

The affinity of iron for oxygen is so great that it will unite with it to form rust at all temperatures, withdrawing it even from water, liberating the hydrogen. Yet it is very singular that the oxide of iron thus produced is reducible again to the metallic state by the very hydrogen which it had liberated. Nevertheless, the spongy mass thus obtained, when exposed to air, has its affinity for oxygen still so strong and undiminished that it takes fire even spontaneously and burns into oxide again. More than that, the black, or rather deep blue protoxide itself, when carefully produced and dried out of access to air and then suddenly exposed to it, will still burn further, and that too spontaneously, glowing like tinder, into brown peroxide, or common rust. In an atmosphere of oxygen, iron burns with vivid brilliant scintillations, produced by merely tying a little cotton to the end of a piece of wire and plunging it in while the cotton is in flames; and D'Arcet showed that combustion

* Vide p. 197.

* The effect of puddling being apparently so important, one would think there could be but one opinion of its advantage and necessity. Yet we find the son of a very eminent practical authority on this particular subject, namely the late Mr. Mushet, not only broaching another opinion on the point, but one the very reverse of that which has been universally held ever since the process itself was introduced by Cort, in 1783. "Which," says Mr. R. Mushet, "is the most preposterous dogma in the present science of iron-making?—1. The use of the refinery?—2. The use of the puddling-furnace?—or, 3. The use of hot-blast in smelting the rich blackband ironstones? I am aware that, in attacking these *time-honoured abuses*, I am uttering blasphemy against the powers that be in iron-making, and earning for myself the character of an insane visionary; but a few short years will show that I am correct in my views; and pig-iron, instead of being subjected to the various tortures of refining, puddling, &c., will be at once passed through the rolls, or placed under the hammer! not, indeed, overloaded as at present with a quantity of carbon, which, as soon as it has by skilful management been got into the iron, must next be got out again; but pig-iron cast with the object in view to which it has to be applied—viz., rolling into bars; and for which it can only now be made *very indifferently fit* by two laborious, expensive, and destructive operations—refining and puddling. The merits of the puddling process, in as far as facility and quantity in the production of bar-iron were concerned, were so immense *in comparison* with those of the former processes employed, that up to this moment iron manufacturers have apparently never considered whether it is possible to supersede the puddling process by a direct method of operation. It is not for me to attempt to enlighten the mighty men of iron, whose greatness, like that of King Og, seems to be measured by the extent of their make in iron—Og being celebrated for his iron *bedstead*, and the eminent iron-masters for the extent of their *beds* of iron; but I would ask, what is the mighty obstacle which really exists to the production of iron fit for rolling out at once into bars." If there be anything in this rather startling heterodoxy, our quotation of it may assist in ripening the fruits of reflection on it.



THE PRIOR'S ROOM, BRADENSTOKE PRIORY, WILTS.

might even be obtained by merely whirling a piece of heated iron rapidly through the ordinary atmosphere with a wire and string. Smithy ashes are scales of partially oxidized or burnt iron, formed by the more subdued burning of highly-heated iron in the open air even without any such artificial excitement. At a red heat, iron rapidly decomposes water and steam, and hence explosions are believed to arise from this powerful affinity of iron for oxygen suddenly liberating large volumes of hydrogen gas from the steam or water. The same affinity enables it, with the aid of high heat, even to decompose potash, or deprive the metalloid potassium of its oxygen, although the affinity of potassium for oxygen is so great that a piece of that substance, to outward appearance just like a piece of soft lead, will, when thrown into water, run along the surface of it burning and blazing, while it consumes the water or unites with its oxygen. It is almost needless to say, that if iron manifested *its* peculiar affinity for oxygen in so peculiar and inconvenient a way, we should have had little use of iron as a metal. Iron, however, as said, will corrode in water for all that, even at ordinary temperatures. Graham is of opinion that this is in general immediately occasioned by the formation of a subsalt of iron with excess of oxide, of which the acid is supplied by the saline matter in solution. As a preventive to this he thinks that "articles of iron may be completely defended from the injury occasioned in this way by contact with the more positive metal zinc, as in galvanized iron, while the protecting metal itself wastes away very slowly." It must be here noted, however, that this advice, though theoretically correct, implies the perfect purity of the zinc; for if it contain, as much of it does, either arsenic or sulphur, the very contrary may be anticipated. Arsenic is a much more *negative* metal than iron, though zinc be somewhat more positive than it, and will accordingly, on the very same theoretical grounds, decidedly tend to hasten the corrosion of the iron; and, as for sulphur, it is well known that in association with iron, *it* will cause the iron rapidly to rot in moisture, sulphurets of iron readily putrifying, decomposing water, and forming sulphuretted hydrogen on the one hand, and iron rust or oxide on the other. And, indeed, as arsenic is but a metallic sulphur after all, there is not the least doubt that arsenical pyrites, or arseniuret of iron, will also rot just as readily as ordinary pyrites, or sulphuret of iron. It is thus that we would attempt to explain some contradictory testimony on the subject of galvanised iron. The perfect purity of the zinc is a point of great importance.

We find it impossible to exhaust the subject of iron and its properties, even in a very elementary and humble way, in a single article, and must therefore recur to this important subject at another fitting opportunity.

## THE PRIOR'S ROOM, BRADENSTOKE PRIORY.

Our view represents the only interior remaining at the ancient Priory of Bradenstoke, in Wiltshire, a few miles from Chippenham; the building is now a humble farm-house, difficult of access, and seldom visited. A small portion of the structure alone remains; there are some very good windows, and an interesting crypt, which adjoins the room shown in the view, and the entrance to which is by a

descent of several steps in the archway beyond the fireplace,—these, with a few shields of arms, are all that is left to interest the antiquarian visiter. It is not known by whom the fireplace was built; there are the letters W. H. L. upon it; the style is late, and the workmanship is rather rude; it stands in an angle of the room, which is a very small one—too small for such a large fireplace.—C. J. R.

## IRISH ARCH-ERY.

THE recent visit of Her Majesty and Prince Albert to Ireland, which has proved so gratifying in every aspect, and is calculated to lead to much advantage, has given ample occupation to the designers and constructors of triumphal arches, and, if we could believe the newspaper accounts, we should be led to state that some "really splendid pieces of architecture," "magnificent designs," and "fine works of art" (*sic* in leading journals), were put up for the occasion. We are not going to object to the epithets, but merely to remark what struck us forcibly in reading all the accounts that, as Planché writes and Matthews sings,—

"Every thing was any thing but what it seemed."

This was imitation of one thing, and that of another; the arch was to look like a pedestal and the boards like Sicilian marble. Nothing was real but the loyalty,—every thing sham but the good feeling.

Amongst the schemes for the improvement of Ireland now rife is the establishment of a fishing settlement and industrial farm on the coast of Mayo, to be called "The Barony of Erris Settlement." A plan has been prepared by Mr. T. C. Tinkler, architect, comprising school-room, dormitories, kitchen, dining-hall, and master's and paid superintendent's house, with out-houses, &c. Funds for the support of a schoolmaster have been granted by the Irish Society of London, and the erection will be commenced forthwith. One great object of the promoters is, to lead the people to take advantage of the abundance of fish to be found upon the coast, and for which a ready market has been found. For centuries this incalculable benefit has been lost to Ireland; from the indifference of the people to the advantage, and the want of knowledge and enterprise amongst them, the markets of the neighbourhood have been chiefly supplied by fish from Scotland.

We cordially wish success to the enterprise.

## BUILDING SOCIETIES.

### EXEMPTION FROM STAMP DUTY.

As there are many of your readers interested in, or connected with, building societies, I am desirous of directing their attention to a recent case in the Court of Common Pleas, which is the most important, in relation to the law regulating these societies, that has occurred for some time. It was, doubtless, the consideration of this importance, and the general discussion which the decision has given rise to in the profession, that induced Mr. Scott, the authorized reporter of the court, to publish the case separately in a complete form,* and thus that gentleman has been enabled to present to those whom it may concern, a very full and accurate report of the same, with annotations, some months before it would have otherwise appeared. I will not, therefore, trouble your readers by touching on all the technicalities and subdivisions into which the case resolves itself; the point decided with which we have more immediately to do is,—"that mortgages and other securities given to the trustees of building societies established under the 6 & 7 Wm. 4, c. 32, are exempt from stamp duty." There was a floating opinion among many members of the profession, that the joint provisions of the Friendly Societies Act (10 Geo. 4, c. 56), and the Building Societies Act (6 & 7 Wm. 4, c. 32), warranted this conclusion. The 37th section of the 10 Geo. 4, c. 56, enacts, "that no copy of rules, power, warrant, or letter of attorney granted or to be granted by any persons as trustees of any society established under this Act, for the transfer of any share in the public funds standing in the name of such trustee, nor any receipt given for any dividend in any public stock or fund, or interest of Exchequer bills, nor any receipt, nor any entry in any book or receipt for money deposited in the funds of any such society, nor for any money received by any member, his or her executor, administrator, assigns, or attorneys, from the funds of such society, *nor any bond or other security* to be given to or on account of any such society, or by the treasurer, or trustee, or any officer thereof, nor any draft or order, nor any form of assurance, nor any appointment of any agent, nor any certificate or other instrument for the revocation of any such appointment, *nor any other instrument or document whatever required or authorized to be given, issued, signed, made, or produced in pursuance of this Act, shall be subject or liable to, or charged with, any stamp duty or duties whatsoever.*" The fourth section of the 6 & 7 Wm. 4, c. 32, enacts, "that all the provisions of a certain Act made and passed in the tenth year of the reign of his late Majesty King George the Fourth, intituled 'An Act to amend an Act of the tenth year of his late Majesty King George the Fourth, to consolidate and amend the laws relating to friendly societies,' so far as the same, or any part thereof, may be applicable to the purposes of any benefit building society, and to the framing, certifying, enrolling, and altering the rules thereof, shall extend and apply to such benefit building society, and the rules thereof, in such and the same manner as if the provisions of the said Acts had been therein expressly re-enacted." That portion of the 37th section of the Friendly Societies Act which enacts that no "bond nor other security to be given to or on account of any such society" shall be subject to stamp duty is extended and applied to building societies by a part of the 4th section of the 6 & 7 Wm. 4, c. 32, "so far as the same, or any part thereof, may be applicable to the purposes of any benefit building society." As, therefore, securities must be given for carrying out the purposes of building societies, it follows as a necessary inference that such securities shall not be "subject, or liable to, or charged with any stamp duty or duties whatsoever."

Wilde, C.J., in delivering the judgment of the court in this case, said—"By the 37th section of the former Act, bonds and other securities or assurances given to or on account of any friendly society are expressly exempted from stamp duty. And the 4th section of the latter Act — its preamble having already shown that its object was to afford encouragement and protection to societies to be established thereunder, and to the property obtained therewith—enacts that all the provisions of the 10 Geo. 4, c. 56, so far as the same, or any part thereof, may be applicable to the purposes of any benefit building society, &c., shall extend and apply to such benefit building society, and the rules thereof, in such and the same manner as if the provisions of the same had been therein expressly re-enacted. Reading, therefore, the 37th section of the 10 Geo. 4, c. 56, as incorporated into the 6 & 7 Wm. 4, c. 32, so far as applicable, it seems to us to exempt from stamp duty all securities given for the purpose of carrying the last-mentioned Act into effect."

One of your contemporaries has sought to call in question (without, we conceive, any great effect) the soundness of this decision; and it is rumoured that a statute is in the contemplation of the legislature, by which the present exemption from stamp duties, extended to friendly and building societies, will be limited. We can only hope that no such short-sighted policy will be carried into execution, and for the present we must consider that the Court of Common Pleas held that mortgages and other securities given to the trustees of building societies established under the 6 & 7 Wm. 4, c. 32, are exempt from stamp duty, and that, therefore, this is the law. We would also remind your readers that if such exemptions were limited by statutory enactment, it would have a prospective rather than a retrospective operation. Three other questions of much importance were determined in the judgment, and the whole case, replete as it is with the pleadings, arguments, rules, certificates, &c., is deserving a perusal by the officers of these associations, and a careful examination from their professional advisers.

A MEMBER OF THE INNER TEMPLE.

* "The case of Walker *v.* Giles and Another, decided in the Court of Common Pleas in Trinity Vacation, 1849. By Mr. John Scott, of the Inner Temple, Barrister-at-law. Demy 8vo. London: Spettigue and Farrance.

## THE MANUFACTURE OF GLASS.

THE removal of the excise restriction from glass appears likely to give a great impulse to the manufacture, and to raise the material to a still more important position in the arts than it has yet occupied.

The composition of glass is very various; but a feature of general resemblance consists in the presence of silica or flint, combined with one or more alkaline bodies, with the addition frequently of other oxide. The substances usually present in glass, besides silica, are potash, soda, lime, oxide of iron, alumina, and oxide of lead. Any of these may be used with silica, it being only indispensable that one alkaline base should be present. In these compounds, boracic acid may be substituted for silica without material disadvantage.

Much obscurity hangs over the invention of glass, but it is invariably attributed to the Phenicians, on the authority of Pliny, who relates that some mariners of that nation, when driven by a tempest for shelter to the mouth of the river Belus, which runs from the foot of Mount Carmel, were surprised on finding that the ashes of the plant "kali," with which they were cooking their provisions on the shore, by mingling with the sand, formed a vitreous and rather transparent substance.

The Phenicians for a length of time were famed for the manufacture of glass; and, in the days of Pliny and Strabo, the glass manufacturers of Tyre and Sidon produced articles of great beauty and very elaborate workmanship, which they had acquired the art of staining and cutting in imitation of precious stones. The Egyptians, it is probable, received their knowledge of the glass manufacture from the Phenicians,—no mention being made in the Mosaic or other ancient writings of their acquaintance with its processes, the only evidence resting upon some pieces of blue glass which have been found at Thebes; but these might have been formed in the course of making the glass of their earthenware beads, with which it is identical in composition.

The Egyptians, consequently, rivalled their teachers; and about the time of the Emperor Adrian, Rome obtained its supply of glass from Alexandria, although the import must have been very insignificant in point of quantity, from the great price which was set upon glass-ware from the time of Nero, who gave nearly 50,000*l.* of our money for two glass cups with handles; but by the time of the Emperor Titus, the Romans must have obtained considerable proficiency, since various glass utensils have been found in Herculaneum, which was destroyed in his reign.*

In the reign of Alexander Severus, the glass manufacturers of Rome were so numerous that they had a distinct quarter of the city assigned them, and were in such a flourishing condition that a tax was afterwards imposed on them. It was in the tomb of Severus that the famous vase was found, which received the name of the Barberini Vase, from the palace in which it was preserved for more than two centuries, when it was purchased by the Duchess of Portland, and afterwards became known to the British public as the Portland Vase.

At a very remote period glass formed one of the articles of commerce which the Phenicians exchanged for tin with the inhabitants of the southern parts of Britain; and it is supposed that the Druids had some slight acquaintance with glass-making, which they turned to good account by persuading their ignorant votaries that their clumsily-formed beads of coloured glass were amulets of rare virtue.

So early as the middle of the first century, the windows of some churches and monasteries in Britain were glazed by foreign artists, though it was not for some centuries after that glass became common even in such buildings. In the beginning of the sixteenth century glass windows were so rare, that they were carried off as valuable booty during some riots that took place in Oxford. Even half a century later glass windows were by no means in extensive use, for we find that the glazed window sashes of Alnwick Castle, in Northumberland, were taken out and laid carefully aside for fear of

* Among the ruins of Pompeii there was found a large bow window, glazed with a greenish-tinged glass; and a window of the baths, with a kind of plate-glass, ground on one side, to prevent persons from seeing through it.

accidents during the absence of the earl. Scotland seems, as well as England, to have made slow progress in its use: in the year 1661 only the upper part of the windows of the palace itself were glazed, the lower part being closed by wooden shutters. Although it was not much used in England, it made considerable progress in France; but it was not until the middle of the seventeenth century that the manufacture was firmly established there, Colbert giving encouragement to some French artists, who had learned the art at Venice. The chief articles produced by these manufacturers were mirrors of blown glass,—the introduction of cast glass mirrors being effected by a manufacturer named Thevart some twenty years later, who, after experiencing great opposition from the old company, was obliged to unite with it; and it was not till the formation of a new company on the ruins of the old united one, that the manufacture became prosperous.

The manufacture of flint glass was commenced in England in the year 1557 at Crutched Friars and Savoy House in the Strand; and in 1635 considerable improvement was effected by Sir Robert Mansell substituting coal for wood fuel. The first plates of blown glass for mirrors and coach windows produced in this country were made in Lambeth in 1673, by some Venetian artisans, under the auspices of the Duke of Buckingham. There was no English establishment of importance for the manufacture of cast plate glass till the year 1773, nearly a century after its introduction into France, when a company was incorporated by royal charter, and established works at Ravenhead, in Lancashire. It appears strange that the Chinese, who have anticipated the Europeans in many matters, should have been ignorant of glass-making, especially when we consider the operations of their porcelain manufacture, and the glazes which are used in it are such as might be supposed likely to lead to the discovery of glass. Even now the only glass-house in the Chinese empire, so far as is known, is one at Canton, in which only old and broken glass of foreign manufacture is remelted and worked again.

G. J. Rhodes.

## NOTES IN THE PROVINCES.

The enclosure at Portland breakwater, we understand, is to be named the Victoria Harbour of Refuge.——The projected improvement of the entrance into Winchester Cathedral precincts from the Square, by removal of an ancient house, and enlargement of the Mechanics' Institution, has commenced.——The *Gloucestershire Chronicle* informs us that the restoration of Upleadon Church, in that district, has been completed. The old church had fallen into a sad state of decay. The floor was so damp that it grew weeds in some places, and the pews were in a wretched state. The ancient Norman windows had been filled with common casements, or partially blocked up, and on the outside earth had accumulated to the depth of 3 feet. All the pews have been replaced by open sittings with carved bench-ends. A simple lectern has been substituted for a cumbrous reading-desk. The old wooden roofs have been stripped, cleaned, and varnished. The windows have been restored, and the east window filled with stained glass by Mr. Rogers, of Worcester. The chancel has been raised two steps above the aisle, and laid with Painswick stone, in lozenges. Oak communion rails, after an Early English example, enclose the communion-table, which stands on a floor of encaustic tiles in eight compartments. This restoration has cost 370*l.*, and has been carried out chiefly by the incumbent, warmly seconded by the farmers in the parish. After the re-opening on Thursday week, the foundation-stone of a new school-room was laid by the Hon. Mrs. Sayers, near the parsonage: Mr. Cullis, builder.——The foundation-stone of Landscove new district church, near Totness, was laid on Tuesday week, in the presence of a large concourse of people, by the Rev. W. Martin. This church will be dedicated to St. Mary, and is, we understand, the gift of Miss Champernowne, the dean and chapter of Exeter providing the ground and the endowment. The architect is Mr. J. L. Pearson, of London; and the builder Mr. John Mason, of Exeter.——A new butter cross, to accommodate 200 to 300 people, is to be erected at Knighton, according to a correspondent of the *Hereford Times*.——At a late meeting of the Birmingham Street-Act Commissioners, Mr. J. Arnold read a letter from Mr. Pigott Smith, who suggested the propriety of an architect being employed to examine the state of the spire of St. Martin's Church, as, in case of its falling, life might be sacrificed.—Mr. J. H. Beilby said, that as much alarm had been created relative to the statements with respect to St. Martin's spire, apprehension might perhaps be allayed by his stating that two eminent architects had lately inspected it, and were of opinion that not the slightest danger exists.——The new buildings of the west wing of Queen's College, Birmingham, from the plans of Messrs. Drury and Bateman, which comprise a suite of rooms of 154 feet in length, for model rooms, library, &c., two additional lecture halls, engineering workshops, and twenty-six additional sets of chambers for resident students, are in rapid progress towards completion, under the contract with Mr. James Mountford, builder.——The laying of the foundation-stone of the New Wesleyan Chapel, Hill Top, West Bromwich, took place on Monday in last week. The chapel is intended to accommodate 1,000 persons, at an estimated cost of 2,000*l.*, the greater part of which has been subscribed. The architect is Mr. James Simpson, of Leeds, and the builder, Mr. John Lees, Hill Top.——The new Town Hall or Corn Exchange at Stourbridge was opened on Tuesday week. The hall is 70 feet long by about 40 feet wide, and is capable of dining 300 persons. There are two entrances—one from the main entrance to the Market Place, opening into High-street, and the other from the Rye Market. Mr. E. Smith, of Oldswinford, was the architect and builder, and the cost of building was 550*l.*——The Altrincham Town Hall and Market Hall is rapidly approaching completion. The brick-work is raised to the full height, the roof timbers are being laid, and the centre of the front has been surmounted by the timber frame-work of the clock and bell-turret. The Market Hall will be 29 feet by 25 feet, and 12 feet 6 inches in height, besides an additional space at the back of 20 feet by 10 feet 6 inches. The Town Hall or Assembly Room will be 39 feet 6 inches by 26 feet, with an ante-room behind of 16 feet 6 inches by 10 feet 6 inches.——Thirty new houses only have been built in Lancaster during the last year; all of them occupied at good rents. They were all engaged, we believe, before the second story was reared. It has been stated that good small houses pay 13 per cent. upon the outlay.——At the entrance to Rotherham from the bridge, a line of crazy buildings is to be demolished, and the street thereby widened. A new street at right angles with Bridge-gate, opposite the end of College-street, and to extend to the river, has also been projected by the feoffees and ratepayers.——From a report of the committee for conducting the subscription for the restoration of Hexham Abbey Church, it appears that the total amount received was 1,559*l.* 3s., and the sum expended in purchasing and pulling down houses encumbering the east front of the Abbey Church was 1,431*l.* 19*l.* 6d., leaving a balance in the treasurer's hands of 127*l.* 4s. 6d. It was resolved, that an effort be made to raise the sum (350*l.*) necessary to purchase and pull down the remaining houses, and to put the Lady Chapel in such a state of repair as to prevent it from falling to decay; and that the subscription be then closed, trusting that at some future time the complete restoration of the building may be accomplished.——The church of Amcotts, parish of Althorpe, Lincolnshire, suddenly fell down on Tuesday week before last. The rector, the Rev. James Aspinall, had observed a yielding of one of the walls two or three weeks before, and had, consequently, performed the service in the school-room. It was a very old building, and the immediate cause of its fall was the increased weight of the thatched roof occasioned by a shower of rain.——A correspondent of the *Chelmsford Chronicle* states that, in addition to the church now erecting at Romford, several improvements are about to be carried into effect. The large loam pond at the top of market place is to be converted into a fountain, and, with an artesian well, will provide the whole town with pure water. A new county court, with a literary institution combined, will form another feature, together with a dispensary. The removal of several dilapidated buildings and the turnpike from the town is projected, with other local improvements.

## COLOUR IN DECORATION.

I was much interested with the observations, in the last number of "The Builder," by Mr. Gilbert J. French, "on the arrangement of colours in ancient decorative art." Mr. French having evidently made a careful research into the rules which guided the ancient decorator, it was satisfactory to me to find how closely they corresponded with what I had myself observed.

In the examples that I have examined, which consist of some of the coloured decorations to be found among our old churches, the first, second, and fourth laws, with certain trifling exceptions, are invariably followed. The third rule is not much used, except in stained glass. I would also notice, how fond the ancient decorators appear to have been of alternating red with green; blue being used more sparingly, and confined very much to soffits, the ground of small groining, panels of ceilings, or, any part where it may be supposed to represent the sky. Red appears, however, to have been the colour most used, especially in the earlier decorations, where frequently red, relieved by the stone colour of the walls, was almost the only colour employed. Red and white was at all times a favourite diaper.

Gold was not much used in the decoration of buildings until the 14th century, at least I have not met with any example. At this date it became almost an invariable rule to gild all carved parts which were foliated. Sculpture may be said, generally, to be coloured "proper."

In your account of the doings of the Archæological Institute at Salisbury, I see no mention made of the coloured decorations of the cathedral. Although all covered up with white or yellow wash, except a little in the chapter house and the passage leading thereto, they were at one time very considerable. Traces of magnificent scrolls and other forms may be still seen through the whitewash upon the groining and walls of the choir, which, judging by the little which is uncovered, must be of a very superior description.

It is a pity that the proper authorities do not take the means of bringing them once more to light, by carefully brushing off the whitewash, as they are doing in the Lady Chapel at Ely.

James K. Colling.

## ON THE USE OF THE PEAT BOGS OF IRELAND.

At a meeting of the Botanical Society of London, held on the 3rd inst., Mr. J. W. Rogers brought under the consideration of the meeting the purport of his paper read at the previous meeting of the society held on the 8th July last, "On the uses and properties of the peat moss, and the value of peat charcoal as a disinfecter and fertilizer." It may be necessary to mention that by the aid of peat charcoal, Mr. Rogers purposes to consolidate and deodorize the solid matter of the London sewers, and, whilst by that means benefiting the inhabitants of the metropolis, there would be placed within the reach of the agriculturist a manure of the most powerful kind, pulverized, free from odour, and fit for transit by any conveyance. In 1845 he brought the subject under the consideration of the public, and it was then alleged that charcoal could not give that quantity of carbon to the leaf of the plant which it was necessary it should receive, and that the leaf, and not the root, being the portion of it which required such sustenance, his discovery was of no use. Often, however, since then he had tried the experiment, and the result had invariably been that it was the root, and not the leaf of the plant, which attracted the carbon, and therefore he was more convinced of the propriety of the system he was endeavouring to promulgate. From the experiments he had made, he had found that peat charcoal possessed far superior advantages to what wood charcoal did.

ROMAN CATHOLIC CHURCH, "OUR LADY STAR OF THE SEA," GREENWICH.

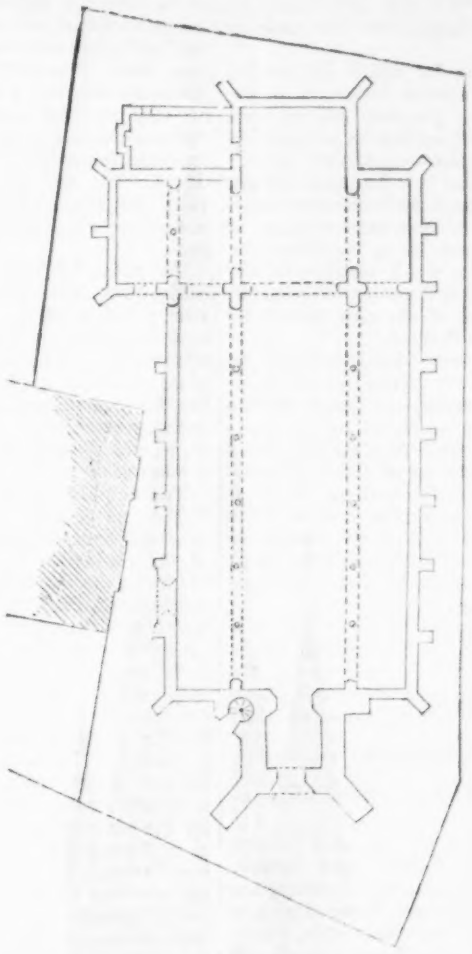
MR. W. W. WARDELL, ARCHITECT.

NEW ROMAN CATHOLIC CHURCH, "OUR LADY STAR OF THE SEA," CROOM'S-HILL, GREENWICH.

WE occasionally hear of the munificence of individuals of different persuasions in contributing largely towards the erection of places of worship: amongst the results of such acts, the church of which we present a view in the present number is worthy of especial note, not only in reference to the industry and zeal that have been brought to bear upon its erection, but from the goodness of its architecture.

The number of Roman Catholic pensioners in Greenwich Hospital is nearly 500; almost every one of these is suffering from some wound, consequently he requires larger space in church than one in sound health. The present Catholic chapel is so miserable in its structure and locality that it threatens almost to bury the congregation without an undertaker; indeed, in addition to the other portion of the congregation, it will not admit of 100 of these pensioners,—in fact, it frequently happens that during the most unpropitious weather the lanes and avenues of the chapel are filled with worshippers kneeling on the ground. These

PLAN OF ROMAN CATHOLIC CHURCH, GREENWICH.



men have fought in all our great sea-fights, and helped to make England what she is,—mistress, in a great measure, of the destinies of the world. They never flinched when fighting by the side of their Protestant brethren. The good Protestant, with a heart to feel, will acknowledge that they deserve even from him consideration in their conscientious scruples.

The present pastor (the Rev. Richard North) undertook their cause. His first effort was unfortunate. He collected 900*l.* with difficulty, and lost it in the failure of Wright's bank. This misfortune made him but the more ardent to set to work again. In his distress he applied to the Lords of the Admiralty, and received from them 200*l.* At the present time, after an outlay of nearly 8,000*l.*, he has almost succeeded in building his church: much help, however, is still needed to enable him to finish it as it should be. Space forbids us here to give particulars; suffice it to state that nearly 1,000*l.* have been contributed in copper and silver.

The church is built of Kentish rag stone, with Caen stone dressings to the windows and doorways, and is in the style of the fourteenth century, or Decorated English. It consists of a nave, aisles, chancel, three chapels, sacristy, and tower. The columns of the nave are octagonal, of solid polished Purbeck marble. The roofs of the nave and aisles are open, and those of the chancel and chapels are lined with cedar panelling on richly moulded oak ribs; the whole of this will be emblazoned with sacred devices. The cornices from whence this panelling springs are to be filled in with carved foliage, lilies, roses, &c., and the hymn, Ave Maris Stella. In the chapels the inscriptions will relate to their dedications. The outer chapel, on the gospel side of the chancel, is for the organ, and an oratory of a religious community, who will form the choir. The fittings will all be carried out in the same style. The architect is Mr. W. W. Wardell.

The annexed plan shows the distribution of the building, and the confined site on which it stands. The tower is next the road.

## PARLIAMENTARY COMMITTEE ON SCHOOL OF DESIGN.

The Parliamentary Committee appointed to inquire into the management of the Government School of Design say in their report, which is just now published,—

"From a general review of the evidence, your committee conclude that the schools, though far from having attained the degree of perfection of which they appear capable, are producing beneficial effects, and may in due time be expected, with energetic support and under judicious management, to realize the anticipations with which they have been founded. In an undertaking of so novel and experimental a character, difficulties have naturally arisen, and no doubt errors have been committed. Prejudices have been encountered; it has been found difficult to get men duly qualified in all respects for the duties which they have had to discharge; and finally, there have been many differences of opinion among those who have been charged with carrying out the undertaking, which have necessarily impeded the uniformity of its operation. Your committee cannot flatter themselves that these difficulties are yet at an end; but they see reason to hope that they are gradually disappearing, and confidently recommend to the house to continue the support which has hitherto been afforded to an object of such great national importance."

"Evidence has been taken upon the systems of management which have prevailed since the opening of the schools, and upon the principles on which the several managing bodies have acted. The inconveniences of the plan of placing a council, or committee of management, variously composed, and consisting of unpaid members, between the Board of Trade and the masters of the school, have been for some time recognised; and unless your committee were prepared wholly to disregard the evidence taken on this point, they cannot avoid expressing the opinion that the present committee of management ought not to be retained. * * Your committee observe that some confusion exists in the proceedings of the present managing body, which they attribute to the circumstance of the relations between the Board of Trade and the committee of management being imperfectly defined; they would recommend that the management be placed on a more distinct footing, by rendering the Board of Trade directly responsible for the management; and your committee trust that the Board of Trade, being made distinctly and primarily responsible for the working of the system, will from time to time make such improvements as experience may show to be desirable."

"Your committee are then, generally, of opinion that the principles of management of the head and branch schools should be these: that the supreme executive authority should be vested in the Board of Trade, and that all persons employed should be immediately responsible to that department. That the Board should appoint all masters and other persons. That one or more paid inspectors, acquainted with ornamental designing, should be appointed, who should frequently visit and report upon the provincial schools, but that the inspectors should not be authorized to interfere with the details of the teaching in any school, for which the head-master or masters of every school ought to be solely responsible."

The committee recommend an increased supply of examples and works of art for the provincial schools, and better accommodation for the central school at Somerset House.

The report seems to us a very "yea-nay" sort of document, and so far as we can discover, might as well have remained unwritten.

## THE COVERED BRIDGES OF SWITZERLAND AND THE TUBULAR BRIDGE OVER THE MENAI STRAITS.

As a visitant of Chester during the recent congress of the British Archæological Association in that city, it was impossible, when so near the most important modern triumph of the art of engineering, not to visit the new tubular Victoria Bridge over the Menai Straits, and I believe it may now, during its formation and erection, be more duly appreciated in all its colossal proportions and the felicities of its construction than it will be when poised in mid air as a thoroughfare for immense trains.

But it struck me that the idea of a "hanging and covered bridge," though in a different material, viz., wood, had been realised in Switzerland and Germany, nearly a century back. I need not recall to your recollection those uncommonly curious structures that were erected over the rapid torrents of the Swiss republic, where, from the force of the current, pillars supporting arches were impracticable; but to your readers the following particulars of some of them, and of others copied from them, may be new and interesting:—

The first in date and merit is that of Schaffhausen, built over the Rhine, where the influence of that river's cataract, a couple of miles lower down, at Laufen, is felt in great force. From its firm construction, it was accounted the best wooden bridge in the world, though the flatness of the banks on each side offered no facilities, and the merit of its projection and construction is due to a common carpenter of the place, called John Ulrick Grubenmann, in 1757. Its entire width was 353 feet 7 inches, without support from below, for though an old pillar was found about half way across the river, on a rock, the construction was independent of its aid: its breadth was 15 feet 6 inches. With the passage of an individual it vibrated sensibly, but was kept immoveable and firm when heavily laden waggons passed over it. The same builder, in conjunction with his brother John, built another hanging and covered bridge, in 1778, over the Limmat, near Wettingen, with a span of 346 feet, and with some improvements and greater firmness than the Schaffhausen earlier one. Both were burnt in 1799 by the revolutionary hordes of France, when retreating after a defeat by the Austrians. The full particulars of their construction, with accurate and clear sections, &c., may be found in "Plans, Coupes, et Elévations des trois Ponts de Bois les plus rémarquables de la Suisse," published in 1803, by Cr. Mecheln, at Basle.

A fine geometrical elevation of the bridge at Schaffhausen is also given in Gauthey's "Traité de la Construction des Ponts," &c., edited by M. Navier, Paris (tom. i. 1809, tom. ii. 1819), on plate iii. fig. 5.

Perhaps, in imitation of that at Schaffhausen, Joseph Ritter, a Lucerne carpenter, built in 1764 his first hanging wooden bridge over the River Candel, in the canton of Berne, with a span of only 156 feet, and on account of the precipitate banks of the river, with a much steadier hold, and therefore much simpler than its prototype; and in 1786 he followed it up by building another over the Reuss, in the same canton, with a span of 148 feet, which seems to have had many of its parts in common with a hanging bridge recently built over the Calder.

In 1786, an architect of the name of Etzel built a bridge on these principles at Plochingen, in the then dukedom, now kingdom of Würtemberg, over the Neckar; it has two spans over the river, resting upon a pier in the centre, each of 176 feet, and has this peculiarity, that the centre is narrower across than the ends, to prevent its slipping out of position.

In more modern times the art of wooden-bridge building has been carried to great perfection in Hungary, by the Austrian road architect, John Gross, who in 1807-8 built a covered bridge over the Waag, in the county of Thurotz, on the principle of the former at Schaffhausen, which seems to have served as a general model. It has, however, the advantage of being built upon the two banks, bold and precipitate, which permit the staunchions that support it to be directed to a common centre above the roadway, which gives the whole great strength and firmness. It is described in Jos. Jeckel's "Galizien's Strassen und Brückenbau," Wien and Trieste, 1806, and copied from this into Langsdorff's "Brückenbau," plate xvii. But the most curious feature in these Magyaric structures is their small cost; the above was built for only 35,000 gülden, or about 3,000*l*. So also one over the Saat, in the county Przemisl, with a total span of 497 feet over three stone piers, cost only 48,600 gulden, or 4,050*l*. At Tarnow, one over the Bial river, in 1782, with 177½ feet span, only 10,080 gulden, or 840*l*.; and as recently as 1802 one in the county of Arvanser, width 236 feet, at the expense to the imperial treasury of 15,600 gulden, or exactly 1,300*l*. —so cheap is labour and indigenous material in that country, which may almost account for the obstinacy of resistance offered by it to the Austrian arms, where men are so readily to be procured and such immense woods exist to cover a retreat or to check the operations of an invader.

WILLIAM BELL.

## A GERMAN ARCHITECT ON ARCHITECTURAL COMPETITION.

AT a time when architectural competition is so much discussed, both as to its principle and practice, the following remarks by a German architect (M. Van der Nüll), on the occasion of a competition for the Parliament Houses at Pesth, may not be useless:—

"The course of calling upon architects to submit designs in competition is one which ought, if properly carried out, to lead to a satisfactory result, by reason of its *publicity*; but as long as the instructions issued are not accompanied by a distinct assurance that the prize or prizes *will* be awarded to one of the designs submitted, and as long as the capability of the judges to decide on the artistic as well as the general merits of the designs is little considered, and their proceedings deserve so little confidence from architects, competition will continue to be a mere form to screen jobbing.

It would seem reasonable that, as in other professions the merits of men and measures are only decided on by persons *properly qualified*, architects should at least be treated with the same consideration: but not so; to criticise *architecture* seems easy to every one, and laymen (if the term may be allowed) are even beginning to furnish designs!

It too frequently happens that designs submitted in competition are returned with the answer that they do not fulfil the required conditions; and it is certain that the result of often great mental toil is thus exposed to piracy, without any safeguard.

But these great evils are not inherent in the *principle* of public competition, but are the results of its improper use, and might be remedied if the attempt were but made in earnest.

When the building for which designs are required is of considerable extent, as in the present instance, the premium offered must necessarily be of small account in comparison with the whole of the outlay, and should, therefore, be awarded to the best design, according to the terms of the instructions, even in the almost inconceivable case of none of the submitted designs being suitable; for surely it is worth some small sacrifice to obtain the result of so much mature deliberation on the requirements of the case as will be found in the different designs.

The remaining evil, that of the decision, might perhaps be removed by calling on the competing architects themselves to decide on the merits of the designs,—each, of course, omitting his own; or should this method prove impracticable, the Institute of German Architects might, at its annual meeting, be called upon to determine the artistic merits of the respective designs, when it would remain for the body instituting the competition to adopt one of them,—grounding their choice on the opinion of the institute.

In conclusion, it may be observed that it is very desirable to obtain the opinion of the public by *exhibiting* the designs,—as the majority of an enlightened and educated people are generally tolerably unanimous in their opinion."

## THE VENTILATION OF STABLES.

AT a late meeting of the Highland Society, Mr. Neil Ballingal, of Kinross-shire, farmer, read a paper on this subject, containing the following remarks:—The experience of modern times, both as respects man and cattle, proves that nothing has greater influence upon health and longevity than the nature of the air which is ordinarily breathed. The air expired from the lungs is naturally and necessarily impure, and to breathe the same air continuously is to inhale what acts on the system as a poison. More especially as regards my immediate subject, there can be given no more convincing proof of the imperfection of the system at present generally pursued than the effect produced by the various agents in operation, even on the timber and roofing of stables and byres. Every one acquainted with the subject knows that from imperfect ventilation, the plastering and lathing of roofs fall away in flakes, and are reduced to rottenness by the constant action of the condensed steam. So much is this the case, that it is no unusual thing, in the course of a nineteen years' lease, for it to be necessary to re-roof a byre, if home timber has been employed. Now, this action indicates a want of power to carry off the impure air yielding the condensed steam, that must prove deleterious, in the highest degree, to the cattle; and we need not wonder, in these circumstances, that pulmonary complaints among cattle are alarmingly on the increase. It is with a view to lead others to contribute their experience on a subject so important to the agriculturist, that I venture to submit what has occurred to myself regarding ventilation.

The subject of my experiment was a byre, about 40 feet long by 16 broad, the height of the side walls being 8 feet, and the roof being tiled, with lath and plaster under the tiles. I found it in a state of complete disrepair in the roof, the wood falling, which had been rendered rotten by the condensed breath of the cattle in continual operation on it. I first raised the side walls 2 feet. At the head of each animal I placed an air slit 2 inches deep, with 1 foot of horizontal length externally, and widening till internally it had a horizontal length of 18 inches. Externally, this slit was about 8 feet from the ground, and it rose gradually till, in the inside, it was 10 feet. Under the ridge rows of tiles on both sides of the roof the tile lath alone was put on, leaving these rows uncovered with lath and plaster from end to end of the byre. The well known property of heated air to dilate and ascend, and that of cold air to descend, sufficiently accounts for both my reasoning and adopting this process, and for its effects. The gradual rise of the cool air through the slit provided for its subsequent ascent for a brief space, so as to cool the heated air passing from the animals' lungs before it should strike the roof, and prevent it from depositing the moisture which it contained. By the slit being gradually widened, I aimed at spreading the air over as large a surface as possible, and without introducing too much cold air, giving the most extensive effect to what was introduced. The removal of the plaster has provided for the egress of that portion of the heated air which ascended to the ridge of the roof.

The result has been most successful. The cattle have, since that time, been uniformly strong and healthy. The air of the byre is cool and refreshing in all weathers; and, what affords a palpable proof of the excellent effect of the system, the wood of the roof which, as has been mentioned, gives way soon in all ordinary cases, is, at this moment, as clean, white, and sound as it was on the day in which it was put up two years ago.

The simplicity of the plan consists of:—1st. In the case of a slate roof, I propose as the most economical plan, to raise the lower edge of the slating by means of a board laid on blocks on the outer edge of the wall, leaving apertures of about an inch high between the board and the wall, which will admit a free current of air. The air will pass under the outer board and lower edge of the sarking, in which a horizontal slit is to be cut of about one inch wide, so as to admit its free ingress. To the whole scheme double apertures are necessary. The second or upper aperture, in the case of slate roofs, is thus provided underneath the second row of slates. On both sides let the sarking be removed for the space of about four inches from end to end. This leaves board enough to which to nail the slates; and the aperture allows the heated air to escape gently through the seams of the slates. In cases where cattle are tied with their heads to the gable ends, slit openings up the gable, leaving sufficient strength of sarking to stiffen the roof, will answer the same end. 2nd. In the case of a tile roof. In the lowest row of tiles take off the under slip of plaster lath. This will admit a sufficiency of the external and wholesome air through the curved vacancies of the tiles. Then for the second aperture —under the ridge or topmost row of tiles on each side, leave that row, as in my experiment, free from lath and plaster, from end to end of the byre; there is thus provided a sufficient aperture for the escape of the heated air.

An article on this subject, giving the result of other personal experience, will be found in an early volume of our journal.

## A TRULY "GOTHIC" EDIFICE.

A CHAPEL, described in the local papers as "the beautiful design of —— ——, Esq., architect," has lately been erected in St. Paul's parish, Bristol. The style is *imitation* Tudor, and the plan almost a square. Its interior "beauty" consists of an enormously projecting gallery attached to the four sides of the "sacred edifice;" and while *some* of the principal timbers in the roof are shown, the spaces between them are *plastered* and ornamented with centres formed of the *acanthus* leaf. The street, or front, elevation is chiefly remarkable for a peculiar pediment rising from the parapet (supported at the back by an iron bar springing from the roof), and exhibiting the name of the chapel in large *Roman* characters.

The other features of the front are three extravagant four-light windows, with a transom formed of quatrefoil to hide the floor of the gallery. At either extremity of this front is a very depressed door-way. The mouldings, mullions, jambs, &c., are of freestone, *without* dressings. The walls are of rubble, plastered and stuccoed. Cost of chapel and vestry from 2,000*l*. to 3,000*l*.

How long, Mr. Editor, will the public submit to such caricatures of Christian architecture? How long is our glorious art to be degraded by its so-called professors?

Bristol. NO GOTH.

## COMPARATIVE STATEMENT OF TENDERS FOR THE ERECTION OF THE NEW BOROUGH PRISONS AT DEVONPORT.

Mr. J. P. St. Aubyn, Architect.

| Names and Residences of Parties Tendering. | First Tender, comprising 70 Cells, Chapel, Officers' Residences, Airing-yard, Boundary-walls, Approaches, &c. | | | First Extension, comprising 72 Cells east and west of main corridor. | | | Second Extension, comprising a Second Set of Airing-yards, and 48 Cells north of main corridor. | | | Third Extension, being additional Residences for Warders. | Principal Building Stone proposed to be used. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Amount of Builder's Tender. | Cost per Cell. | | Amount of Builder's Tender. | Cost per Cell. | | Amount of Builder's Tender. | Cost per Cell. | | | |
| | | Builder's Tender. | Ditto, including estimate for warming, ventilating, &c. | | Builder's Tender. | Ditto, including warming, ventilating, &c. | | Builder's Tender. | Ditto, including warming, ventilating, &c. | | |
| | £. s. d. | £. s. d. | £. s. d. | £. s. d. | £. s. d. | £. s. d. | £. s. d. | £. s. d. | £. s. d. | £. s. d. | |
| Simons, Hoskin, and Jenkin, Morice-town, Devonport .. | 11,803 10 9 | 168 12 5½ | 189 17 2½ | 2,665 11 7 | 37 0 5½ | 49 19 2½ | 2,803 5 3 | 58 8 0½ | 71 6 9½ | 674 9 2 | Dun-stone. |
| Marshall, Plymouth..... | 12,173 18 0 | 173 18 3 | 195 3 0 | 2,778 17 9 | 38 11 11 | 51 10 9 | 2,616 11 4 | 54 10 2½ | 67 8 11½ | 687 0 5 | Cann-quarry slate |
| May, Stoke, Devonport ..... | 12,382 1 7 | 176 17 8½ | 198 2 5½ | 3,135 11 1 | 43 10 11½ | 56 9 8½ | 2,816 7 0 | 58 13 5½ | 71 12 2½ | 741 16 3 | Ditto. |
| Mitchell, Plymouth..... | 12,715 15 3 | 181 13 1 | 202 17 10 | 2,993 5 5 | 41 11 5½ | 54 10 2½ | 2,665 5 7 | 55 10 6½ | 68 9 3½ | 707 0 9 | Ditto. |
| Winsland and Holland, London | 12,712 7 7 | 181 12 1½ | 202 16 10½ | 2,985 6 6 | 41 9 3 | 54 8 0 | 2,813 7 8 | 58 12 3 | 71 11 0 | 779 5 7 | Ditto. |
| Goodyear and Roberts, Stonehouse ..... | 12,949 0 0 | 184 19 8½ | 205 4 5½ | 3,143 0 0 | 43 13 0½ | 56 11 9½ | 2,860 0 0 | 59 11 8 | 72 10 5 | 859 0 0 | Ditto. |
| Steed and Harvey, Plymouth.. | 13,840 4 1 | 197 14 4½ | 218 19 1½ | 3,177 7 1 | 44 2 7½ | 57 1 4½ | 3,031 19 2 | 63 3 3½ | 76 2 0½ | 766 9 8 | Lime-stone. |

*Note.*—The above amounts included Messrs. Pearson and Co.'s tender to the Devonport corporation for the Cann-quarry slate-stone, paving-slabs, &c. Quantities were furnished by Mr. Foster, of Plymouth.

### COUNTRY CHURCHYARDS.

The formation of cemeteries in the neighbourhood of cities, and the abandonment altogether of intramural burial, by which, let us hope, it is speedily to be attended, leaves still desirable some improvement of country churchyards, to perfect properly the reform in progress with regard to our means of sepulture. The evil which has bred so much reproach in towns—the disturbance and destruction of graves—exists likewise, after a less expeditious fashion certainly, in the village burial-ground, and from the same cause—want of space. Nor has the facility at hand for remedying this evil in the country, annexing a portion of the contiguous field, been, seemingly, often taken advantage of. The end, besides this constantly proceeding erasure, as it were, of old graves, has been frequently an elevation of earth to a level above that of the floor of the church, producing damp and decay, and not ministering, one would think, to the health of the congregation; or, if the gutter about the building, commonly seen, may counteract the ill effects alleged, the appearance of the church—a choice example, perhaps—remains impaired. The measure demanded appears plainly to be the enlargement of churchyards, where requisite, throughout the kingdom. The sacredness of the grave being this way ensured, an opportunity presents itself for ennobling the view of the church, as well as imparting to the ground a shaded, solemn aspect, by the planting of trees (shrubberies, or anything resembling gardens, to be avoided); nor should a recommendation in favour of improved forms of head stones, &c., be omitted. There are few spots, in short, so capable of being converted, generally, as some instances already betoken, into scenes of more grateful seclusion, of more impressive beauty, than the village burial-yard.

H.

### GRAVEYARDS IN CLERKENWELL.

Among the crying evils of the present day may be classed the system of intra-mural burials. In no place is a reform in this particular more necessary than in the district of Clerkenwell, where they are completely hemmed in and closely abutted on, on all sides, by dwelling-houses and workshops, in many cases deriving light and ventilation solely from these pestilential graveyards. The overcrowded state of one of them has been made the subject of a Government commission (I allude to Spafields); the others (four) are scarcely in a better condition; an examination of them is imperatively necessary. My attention, as district surveyor, has lately been called to the state of the vaults in St. James's Church, where, through quite open gratings, piled in rows, are to be seen coffins seven or eight deep: the graveyard is literally crammed. Strange to say, interments still go on. Extensive workshops are being erected on the adjoining properties.

The attention of Government is now being directed to this subject, and the nuisance must be summarily dealt with. Any further interments should be interdicted, the vaults sealed, and 2 feet of concrete placed over the graveyards.

R. Lacon Sibley.

### THE FACE OF SHAKSPEARE.

A late inhabitant of Stratford-on-Avon, Mr. William Warner, has forwarded to us a cast of the front half of Shakspeare's head, from the monumental bust in the parish church, nicely mounted on a black slab. The lovers of the poet, whom—

"Neither man nor muse can praise too much,"

may be glad to hear that copies of this are to be had. The mask appears to be a careful transcript of the original, but the hair and beard seem more detailed.

Mr. Britton, in an interesting little volume, which he has just now printed for the subscribers to his testimonial,* "by way of instalment," gives some particulars of the original monument and of the cast taken by Mr. Bullock in 1814, at his suggestion, with evidence in favour of this being a correct resemblance of the poet, worked it may be from a cast taken from life, or rather, perhaps, death.

### METROPOLITAN COMMISSION OF SEWERS.

A general court was held on Thursday last, at the Court House; the Rev. W. Stone in the chair. A letter was received from Mr. Pattison, clerk to the Chelsea Improvement Commissioners, asking for facilities to be afforded to that body for carrying into effect certain cleansing operations, if no legal objection existed to such a course. There being several legal objections, the clerk was ordered to communicate with the commissioners to devise means to meet the difficulties upon the question.

On the question being submitted to the court as to the appointment of two additional surveyors, Mr. Leslie took an objection to their appointment, and called for the report of the committee showing the necessity for them. It appeared there was merely a simple recommendation from the Works Committee. This subject led to a long and rather personal conversation, in which Mr. Leslie, Mr. Bullar, Mr. Chadwick, and the Rev. W. Murray took part; but it was finally resolved that Mr. Bazalgette and Mr. Creasy should be appointed as assistant-surveyors, at a probationary salary each of 250*l.* per annum.

Mr. Graham, of Battersea, attended the court to complain that several cases of cholera had occurred in his family, arising, as he believed, from a most offensive main sewer receiving the drainage of Clapham and discharging into the Thames, and which sewer was on the boundary of his property. The deposit in this sewer was 16 feet wide and 4 feet deep. Mr. Grant, the surveyor, was ordered to report on the subject.

A deputation from the parish of St. James, Westminster, headed by Mr. Charles Cochrane, attended the court, on the subject of cleansing the streets of that parish by "orderlies."

After some discussion it was finally agreed, on the motion of Sir John Burgoyne, that no further proceedings be taken in the matter.

* Appendix to Britton's Auto-biography, containing biographical, archæological, and critical essays on Shakspeare and Stratford, &c.

A report was presented by Mr. Grant on the state of Albion-place, Wandsworth-road—the place in which cholera has raged to so fearful an extent, and so specially referred to in the last report of the Registrar-General. From it it appeared that between the 27th of July and the 13th of August there were in this place, consisting of 17 houses, 38 cases of cholera, and 25 deaths, and that six of these deaths had occurred in one house; and it also appeared that the cisterns for water were below the level of the cesspools. On the 26th of July there was a very heavy fall of rain, which caused the drains to overflow into the water-cisterns. The day after this storm the first person was attacked; and it was mentioned as a remarkable fact, that no persons were attacked east or west of this place where the cisterns were not liable to this overflow.

## Miscellanea.

Money for Public Works.—It appears the great hindrance to any public and national work is the want of funds, and the aversion the Chancellor of the Exchequer has to borrowing for such purposes—but surely there cannot be a more legitimate purpose for borrowing. National works, now in abeyance, or in a very slow course of progress, as the Houses of Parliament, Westminster-bridge, deposit for records, National Gallery, are surely not meant for this generation only, but for ages yet to come; then why should the present generation be taxed for the carrying on of such works, and our posterity have the full enjoyment at our expense? Would it not be far more just that the country should be simply taxed for the interest of a sinking fund for the ultimate redemption of the debt, than be charged with the principal money required for such purposes? The immense advantage to the working classes engaged in building operations should have some consideration. If the Chancellor of the Exchequer had the most ample funds, still the objection would remain; to employ money raised by taxation for the completion of national works I consider both unjust and impolitic upon those now so heavily burthened.—M. P.

Ipswich Mechanics' Institution.—For some time past the committee of this institution have been striving to obtain a proper building for their purposes, but have heretofore not succeeded. Some of our readers will perhaps remember a competition on the subject, to the terms of which we were obliged to object rather strongly. Plans, it seems, have now been matured, by which, at a contemplated expense of 1,900*l.*, will be obtained a lecture-room 63 feet 6 inches long, 40 feet wide, and 25 feet high, and a reading-room 48 feet long, and 28 feet wide. The committee seek assistance, and we shall be glad to find it afforded to them. Mr. Shave Gowing, of Ipswich, receives subscriptions.

Value of Land.—At the sale, on Monday, of the building land at Woodhill, Portshead, the property was bought in at 400*l.* per acre, about four acres of the least valuable part (two acres and a half of which must not be built upon) having been disposed of previously to the sale at that price.—*Hereford Journal.*

Railway Jottings. — The financial position of the Chester and Holyhead line is anything, it is said, but cheering. More than double the present traffic, it seems, will not pay the interest to the preference holders, leaving out of question the holders of the original capital of 2,100,000*l.* ——The contract for constructing the bridge at Chepstow, for the South Wales line, has been taken by Messrs. Smith and Willey, of Liverpool, engineers. The whole is to be of wrought-iron, the largest span being about 300 feet, resting on cast-iron piers or pillars, sunk down to the rock.——The Rhymney Iron Works have contracted, it is said, with the Royston and Hitchin Railway Company to deliver in London 5,000 tons of rails at 4*l.* 18s. 6d. per ton.——The works on the Ipswich and Norwich line are progressing. The viaduct over the Norfolk line is commenced; the bridge near the Victoria-gardens is nearly completed; and the earthworks are proceeding with.——The Edinburgh and Glasgow Company, according to the *Reformer's Gazette*, have opened up the tunnel at their Glasgow station through a space of 90 feet between Cathedral and Holmhead-streets, thus admitting light and air into that portion lying near the station. —— The London and North-Western Company has permitted the issue of assurance tickets at the principal stations on its line. In the event either of loss of life, or personal injury, a first-class passenger, by a payment of threepence, will insure 1,000*l.*; a second-class, by a payment of twopence, 500*l.*; and a third-class, by a payment of one penny, 200*l.* The insurance is irrespective of distance.——In consequence of the increase of business in transmitting intelligence by electric telegraph, says the *Liverpool Albion*, and the great complaints, by the city merchants and the press, on the enormous charges made by the company in comparison with the United States, it is intended to make a great alteration in the scale, so as to render this means of communication more available to all parties. We are glad to hear of it, for the sake of the Company itself as well as the public.——The *Moniteur* announces that the President of the French Republic has authorised Mr. Jacob Brett to establish on the coast of France, between Calais and Boulogne, a submarine telegraph, to cross the Channel, and communicate with the English coast at Dover. The treaty guarantees certain advantages to the French Government, and leaves all the expense to the contractor, to whom it secures a privilege of ten years, should the experiment succeed. The works are to be terminated on 1st September, 1850, at latest.

Sussex Archæological Society.—The fourth annual meeting of the Sussex Archæological Society was held last week, at Arundel. In the absence of the Duke of Norfolk, the chair was taken by the Earl of Arundel and Surrey. At twelve o'clock the members assembled at the Town Hall, where a great number of interesting objects in archæology were exhibited. Some pleasant papers were read, and the members viewed the patchy, degraded castle, and ruinous monuments in the church. The disfigurements in the castle, by Dallaway, afford subjects for reprobation.

Bristol-bridge Competition. — The Improvement Committee of the Town Council has awarded a premium of 25*l.* for a design for widening Bristol-bridge, by the corporation architects, Messrs. Pope and Co. It consists, we hear, of two Tuscan columns built upon each of the cutwaters and abutments of the bridge, bearing on their capitals strong iron girders, upon which will be placed iron cantilevers to carry the flagstones of the footway, intended to be 8 feet wide, and surmounted with a balustrade. Eighteen drawings and one model were sent in.

Blind Builders.—A list of tenders for schools, at Harlow, in Essex; Mr. G. E. Pritchett, architect. The quantities supplied!

| | | If with Kentish ragstone in random courses. |
|---|---|---|
| Ashby | £2,500 | £2,740 |
| Harris | 2,250 | 2,285 |
| Smith | 2,100 | 2,242 |
| Prior | 2,157 | 2,337 |
| Carter and Ellis | 2,063 | 2,165 |
| Peck | 2,010 | 2,147 |
| Young | 1,970 | 2,110 |
| Smith (accepted) | 1,660 | 1,802 |

Railway Compensation Cases. — Several claims on the London and North-Western Company were recently brought before special juries at Birmingham. In the first, 9,000*l.* to 10,000*l.*, it was understood, were claimed by Messrs. Waddell and Izod, for the Hen and Chickens Hotel, through part of the stables only of which the Company had made their way. Informality of notices on the Company's part were urged, and the case was cast aside. The powers of the Company to take compulsory possession of property was to expire on the following day.—The next case was Captain Inge's claim of 1,581*l.* 15s. for a property leased by his ancestors in 1773, for 99 years. Part of the claim consisted of 527*l.* 5s., or 50 per cent. for compulsory sale, on 1,025*l.*, the product of 4 per cent. on 10½ years' purchase of the rents, amounting to 100*l.* The calculation was made according to Inman's tables, which the Company's counsel ridiculed as "a system of thimble-riggery to prove anything required." The valuations on the defendants' part ranged between 550*l.* and 560*l.* The jury returned a verdict for 1,147*l.* 10s. The company had offered 715*l.*, and the claimant had offered to accept 1,340*l.*——The next was a demand of 5,300*l.*, by Mr. Bird, a druggist, for compulsory removal, fixtures, and loss of lease and local business. His rent was 70*l.*, but elsewhere, it was alleged, would be 200*l.* For loss of fixtures 400*l.* were claimed; loss of income at 800*l.* a-year for three years, 2,400*l.*,—forced sale 50 per cent.,—or 3,600*l.* on whole for loss of trade; loss on 700*l.* worth of stock 80 per cent., or 550*l.* The profit on drugs was represented to be sometimes 400 per cent. on prime cost. An accountant stated in evidence that, in 1848, when Mr. Bird's profits were stated to be 750*l.*, his income-tax amounted only to 13*l.* 6s. 3d., in place of 21*l.* 17s. 3d., but that the return was fixed by the Government assessor, and not by the claimant. An agreement for lease, duly stamped, was put in. The company's counsel, however, explained that Mr. Bird did not possess a lease, that the company had themselves purchased the freehold without any such lease, and that the freeholder had merely agreed to give Mr. Bird a lease if he applied for it at the end of the first year of his tenantcy. In summing up the assessor stated his opinion that Mr. Bird was merely a tenant for a year. The jury, after much difference, returned a verdict of 985*l.* and 1s. damages. The Company had offered 1,250*l.*

Cambrian Archæological Association.—This society will hold its third annual meeting in Cardiff, on Monday, the 27th inst., and four following days. The president-elect for the year is the Viscount Adare. Cardiff is within reach of many antiquities of interest: the great cromlechau, near St. Nicholas; tumuli, beacons, and camps; the Roman stations of Cardiff and Caerleon, and museum of Roman antiquities at the latter place; a large number of mediæval castles of the first class—Caerphilly, Cardiff, St. Donat's, &c.; Llandaff Cathedral, Ewenny Priory, Margam Abbey, and many interesting smaller churches; there are also very early inscriptions at Lantwit, Margam, &c.

Increase of Trade.—From a summary of exports during the month ending 5th July, in the *Birmingham Journal*, it appears that there was an increase on glass manufactures of 1,538*l.* on 20,169*l.*,—the value exported during the like period of last year; that on hardwares and cutlery there was an increase of 15,002*l.* on 165,873*l.*; on painters' colours an increase of 2,983*l.* on 12,962*l.*; on iron and steel, an increase of 40,295*l.* on 464,294*l.*; on copper and brass, an increase of 51,533*l.* on 101,986*l.*; and on lead an increase of 13,423*l.* on 11,452*l.* On machinery, however, there was a decrease of 8,953*l.* on 93,871*l.* The following table shows a progressive demand for articles peculiar to the Birmingham district. Even machinery here appears to be progressing, month by month:—

| | April. | May. | June. | July. |
|---|---|---|---|---|
| Glass | £23,458 | £20,469 | £19,674 | £21,707 |
| Hardware and cutlery | 190,775 | 143,466 | 157,179 | 160,675 |
| Machinery | 27,632 | 41,239 | 46,130 | 84,918 |
| Iron and steel | 454,513 | 436,615 | 426,689 | 504,189 |
| Copper and brass | 170,483 | 129,484 | 109,810 | 183,519 |
| Tin (wrought and unwrought) | 92,128 | 60,124 | 67,979 | 77,995 |
| | 988,989 | 831,397 | 826,361 | 1,033,503 |

Projected Works.—Advertisements have been issued for tenders, by 25th inst., for the erection of a party-wall between the ground of the Paddington Workhouse and that of the Lock Hospital; by 23rd, for the erection and completion of certain buildings at the back of, and adjacent to, the workhouse of St. Leonard's, Shoreditch; by 27th, for building 1,050 feet of brick sewer, and other works connected therewith, along the Willow Walk, Bermondsey; by 30th, for the reconstruction of the drainage and water supply, with various other works, at the Union Workhouse, Cuckfield; by 27th, for works required in the formation of roads at West Croydon station, and the extension of the Bricklayers' Arms goods depôt, of the London and Brighton Railway; by 8th Sept., for extensive repairs, &c., to the parish church of Aylesbury; by 28th inst., for the erection of Bracknell District Church; by 27th, for the whole, or any portion of the works required to be done in the erection of a church in All Saints' district, Leeds; by a date not specified, for any portion of the works to be done in the erection of a church at Hepstonhall, Halifax; by a date not specified, for the works to be executed in the erection of St. Matthew's National School and schoolmaster's house, Little London, Leeds (drawings to be seen till 21st inst.); by 21st, for the erection of a national school for 225 children, with mistress's house attached, and other buildings; by 10th September, for the construction of three reservoirs, and the masonry of a bridge for the Manchester Corporation Waterworks; by 24th September, for works to be executed in new pauper lunatic asylum, to be erected at Powick, Worcester (plans, &c. to be seen on and after 4th Sept., in place of from 6th inst.); and by 28th inst., for making a road, and for pavement and curb-stone, at Southampton Marsh.

New Gas Generater.—A patent self-acting gas apparatus has been exhibited at Hull, according to the *Packet*, by English's Patent Camphine Company. The gas which it generates (from camphine or mineral oil) is said to produce a light far purer and more brilliant than that of coal-gas, and without the least noxious vapour. The apparatus consists of a furnace of cast-iron, divided into two compartments, in one of which the retort is set, the other being filled with fuel, descending into the furnace, exactly as the combustion proceeds. In the lower compartment is fixed a double retort, having at one end, outside the furnace, a short vertical pipe. At a little distance is the gasometer, and above, a vessel containing the fluid, and connected with the retort by a small tube. The fluid flows through the upper along the lower compartment of the retort, being decomposed in its passage; it then passes through a syphon-box for the receipt of any undecomposed fluid; thence through a washer to the gas holder. Should the gas be generated too rapidly for the burners which are lit, the rising of the gas holder immediately raises a lever and cuts off a portion of the supply of fluid. The apparatus can be adapted to any number of lights for public buildings, churches, lighthouses, gentlemen's houses, road-side railway stations, hotels, and other places where coal gas cannot be obtained. It is also said to cook with cleanliness and nicety.

Art-Union of London Exhibition.—The works of art purchased by the prizeholders are now being exhibited in the Suffolk-street Gallery, and will remain on view for three weeks longer. Subscribers and their friends will find it wise to pay their visits at once, while there is plenty of room, and not wait till nearly the close, by which course the rooms become most inconveniently crowded.

University of London and Architecture.—By the new charter granted to the University of London, the council may institute examinations for certificates of proficiency on any subject they may think fit, connected with the arts or sciences, such as architecture and civil engineering. This was spoken of at the closing meeting of the Institute as matter for congratulation. *Cela dépend*, as the French say.

Manchester Cathedral.—The days of the old tower of the cathedral church are said to be numbered. It has long been in a miserable condition, and the present churchwardens having called in professional advisers, their report fully confirms the reports of former architects as to its dangerous state.

## TENDERS

For the completion of the Army and Navy Club. Messrs. Parnell and Smith, architects. The quantities supplied.

| | |
|---|---|
| Messrs. Baker | £16,236 |
| Mr. Jackson | 15,933 |
| Messrs. Smith and Appleford (accepted) | 15,671 |

## TO CORRESPONDENTS.

*Received.*—"Citizen" (the building in question is unsatisfactory enough; the inside, where ornament is attempted, worse than the out. When, however, for the information of the public, we seek and obtain from the architect facilities for illustrating a new building, it is not our practice to express condemnatory opinions), "State of the Drains" (for a dozen letters on this subject, we regret to say we have not space), "W. B." (shall appear), "Constant Subscriber" (we object to recommend), "N. P." (ditto), "G. W.," "J.," "J. G.," "A very old Archæologist," "G. R. F." (declined with thanks), "Constant Reader" (a whole deal is 3 inches thick), "A Subscriber" (declined with thanks), "P. M. H.," "E. M." (will find much information on the subject scattered throughout the past volumes of THE BUILDER), City of London Union, plan postponed.

*"Books and Addresses."*—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

## ADVERTISEMENTS.


**THE NILE.—NOW OPEN,** Afternoons at Three, Evenings at Eight o'Clock, at the EGYPTIAN HALL, Piccadilly, a new and splendid MOVING PANORAMA of the NILE, exhibiting the whole of the stupendous works of antiquity now remaining on its banks, between Cairo, the capital of Egypt, and the second cataract in Nubia. Painted by Henry Warren and James Fahey, and Joseph Bonomi, from drawings by the latter, made during a residence of many years in Egypt.
Stalls, 3s.; pit, 2s.; gallery, 1s.

**ROYAL POLYTECHNIC INSTITUTION.**—First Series of Dissolving Views Illustrating Rome, with a Description embracing the most interesting points connected with the subject. Daily at Half-past Four, and every Evening at Quarter to Ten o'clock.—Lectures on Chemistry, by Mr. J. M. Ashley, Daily at Half-past Three, and on the Evenings of Monday, Wednesday, and Friday, at Nine o'clock. Lecture, by Dr. Bachhoffner, on Masters's Patent Process of Freezing Dessert Ices, &c. The Oxy-hydrogen Microscope Daily at One o'clock, and every Evening at Eight. Diver and Diving Bell.—Admission, 1s: Schools, half-price

TO LANDED PROPRIETORS, BUILDERS, AND OTHERS.
**MESSRS. BROWN and ALEXANDER,** Architects, Surveyors, and Estate Agents, beg most respectively to announce that they continue to make surveys of land and dilapidations, designs with elevations, plans, &c., and all necessary working drawings, estimates, and specifications, with superintendence if required, with every other branch of the above professions, upon the most reasonable terms.—Offices, 36, Staple Inn-chambers, Southampton-buildings, Chancery-lane.

**PAPER-HANGINGS**—At E. T. ARCHER'S Manufactory for English and Warehouse for English and French Paper-hangings, from One Penny per yard, to the most costly pannelled decorations. The decorations are fitted up on the walls of an extensive range of show rooms, showing at one view a drawing or dining-room finished, fit for occupation.—Painted marble or granite papers of superior fabric, from One Penny per yard.—451, Oxford-street.

**PAPER-HANGINGS by MACHINE and BLOCKS.**—The trade supplied in town and country, with machine goods, from first-rate new designs, at the lowest prices they have ever been sold in this country; and block goods, for style and quality, not to be surpassed by any house in England. All the patterns are registered, and can only be supplied by HENNELL and CROSBY, Queen-street, Southwark-bridge-road. Cheapest house in London for oak, marbles, and panel decorations. A set of patterns, 5s., to be deducted off an order of 5l.—Terms, cash.

**ARCHITECTS', BUILDERS', and GENERAL FIRE and LIFE INSURANCE COMPANY,** 69, Lombard-street, London.
CHAIRMAN, SYDNEY SMIRKE, Esq., A.R.A.
TRUSTEES.
T. L. Donaldson, Esq. | A. Salvin, Esq., F.S.A.
S. Grimsdell, Esq. | G. Smith, Esq., F.S.A.
The rates for both Fire and Life Insurances are as low as can with safety be taken. Those for Life Insurance may be paid either yearly, half-yearly, or quarterly; one-half the annual premium may be left unpaid for seven years, or one-third to the end of life. Thus large sums may be insured at the smallest present outlay.
Prospectuses, forms of proposals, &c., may be had at the Office 69, Lombard-street, or of the agents.
JOHN REDDISH, Manager.

**THE LIVERPOOL and LONDON FIRE and LIFE INSURANCE COMPANY,**—Offices, 8, Water-street, Liverpool; 3, Charlotte-row, Mansion-house; and 28, Regent-street, Waterloo-place, London.
This institution is empowered by special Acts of Parliament; has a subscribed capital of 1,500,000*l.*; surplus funds of 184,928*l.*, besides the accumulated life premiums; and the liability of its proprietors is unlimited. Its system of life business is peculiarly adapted for persons who prefer certainty to speculation, and the bonuses guaranteed will bear comparison with those actually declared by other companies.
Fire Insurances on the usual terms of established offices.
SWINTON BOULT, Secretary to the Company.
BENJ. HENDERSON, Resident Secretary in London.

**FAMILY ENDOWMENT, LIFE ASSURANCE AND ANNUITY SOCIETY.**
13, Chatham-place, Blackfriars, London.
CAPITAL, £300,000.
DIRECTORS.
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BONUS.
Thirty per cent. Bonus was added to the Society's Policies on the profit scale in 1845. The next valuation will be in January, 1852.
ANNUAL PREMIUMS WITH PROFITS.

| Age 20. | Age 25. | Age 30. | Age 35. | Age 40. | Age 45. | Age 50. | Age 55. |
|---|---|---|---|---|---|---|---|
| £. s. d. | £. s. d. | £. s. d. | £. s. d. | £. s. d. | £. s. d. | £. s. d. | £. s. d. |
| 1 17 9 | 2 3 1 | 2 9 7 | 3 16 2 | 3 5 9 | 3 16 2 | 4 10 6 | 5 7 6 |

Annuities of all kinds, as well as endowments for Children, are granted by the Society.
The usual commission allowed to Solicitors and others.
INDIA.
The Society also grants Policies to parties proceeding to or residing in India, at lower rates than any other office; also Deferred Annuities and endowments, accurately and economically framed to meet the periods of service, and add to the retiring pensions of the Civil and Military Officers of India.
Tables, &c., to be had at the Society's Office in London, or at the Office in Calcutta.
JOHN CAZENOVE, Secretary.

**REDUCED PRICES.—EDWARD SIMMS** (late William Cleave), of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK and DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ¼ inch to 1¼ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Planks, Scantlings, Sash Stiles, Mouldings prepared by Machinery, Laths, &c.—Apply at E. SIMMS'S (late W. Cleave's) Flooring Manufactory, Wilton-road, Pimlico Basin.

**A REDUCTION** in the PRICE of FLOOR BOARDS.—ALFRED ROSLING begs to inform the Trade and Consumers generally, that he has REDUCED the PRICE, and keeps constantly in stock a large and very general assortment of Prepared Floor Boards and Matched Boarding, planed to a parallel breadth and thickness, and fit for immediate use; also a variety of machine-prepared Mouldings, which are finished with great accuracy and attention to quality of workmanship.—Southwark Bridge Wharf, Bankside, and Old Barge Wharf, Upper Ground-street, Blackfriars.

**GREAT REDUCTION IN THE PRICE** OF FLOOR BOARDS AND MATCH BOARDING.—THOMAS ADAMS (late S. Dare), Mahogany and Timber Merchant, Bermondsey New-road, Southwark, near the Bricklayers' Arms, begs to inform his friends and the trade generally, that he has in stock a large assortment of the above goods, fit for immediate use, at prices which only require a trial to prove their decided cheapness. Also mouldings prepared by machinery from the very best material, and in a superior manner; cut deals and scantling of every dimension; mahogany, cedar, rosewood, wainscot, elm, beech, oak, &c., in planks, boards, veneers, and logs; pantile, oak, and fir laths; wheelwrights' goods. All sawn and prepared goods (except timber) delivered free of expense; sawing charged at mill prices. Very extensive drying sheds.

MUIR'S PATENT PLANING MACHINE.
SAW MILLS, GILLINGHAM-STREET, PIMLICO.
**TIMBER** of any size, PLANK, DEALS, and BATTENS, &c., Sawn on the most approved principle. Boards, &c., Prepared, Matched, and Grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks and carted home free of charge.
Address to HENRY BOUTHAM,
Saw Mills, Gillingham-street, Pimlico.
N.B. Estimates given for Sawing and Planing.

**GENERAL WOOD-CUTTING COMPANY.**—SAWING, PLANING, AND MOULDING MILLS, Belvedere-road, Lambeth, between the Suspension and Waterloo Bridges. SAWING and PLANING in all their branches executed with the greatest despatch and punctuality. A large Stock of seasoned and beautifully WORKED MOULDINGS, consisting of upwards of 100 different patterns kept constantly on hand; also an extensive assortment of dry prepared FLOORING BOARDS, of all qualities and at reasonable rates.

**DESICCATED WOOD.—DAVISON and SYMINGTON'S PATENT.**—Builders, Cabinet-makers, and others, will find it much to their advantage to patronise this new process of seasoning. The greenest wood can thus not only be seasoned in an incredibly short space of time, at a small cost, but is rendered stronger, entirely free from shrinkage, and in every respect better than wood treated in the ordinary way; thereby saving capital, interest of money, insurance, and all the other inconveniences attending the keeping of a large stock.
The DESICCATING SAWING and PLANING MILLS are situated at PLOUGH BRIDGE, BOTHERHITHE, adjoining the Commercial and East Country Docks, from whence parties obtaining their material can have the same converted as required, and sent home fit for immediate use.—T. GIRLING, Manager.
For licenses to use the patent, scale of prices, or other information, address, ANGUS JENNINGS, Secretary, Patent Desiccating Company, 41, Gracechurch-street, City.

TO ARCHITECTS, BUILDERS, UPHOLSTERERS, AND OTHERS.
**WOOD CARVING** done in the cheapest and best manner. Estimates given to any amount. Pulpits, reading-desks, altar-rails, stalls, and other church fittings supplied complete. Old carvings restored by J. STALON, Wood Carver and Manufacturer, 42, Berwick-street, Soho, London.

**JORDAN'S PATENT MACHINE** CARVING and MOULDING WORKS for WOOD and STONE, Belvedere-road, Lambeth, and 134, Strand.—TAYLOR, WILLIAMS, and JORDAN beg to call the attention of the building community to a new feature of their establishment, and, at the same time, to thank their numerous patrons and friends for the very liberal support they have lately experienced, which, they assure them and the public, it will be their constant endeavour to deserve, by giving their customers an increasing share of the advantages arising from the constant improvements in the machinery which they have just succeeded in applying to the production of the most intricate carving in Caen and other freestones, and in statuary marble.
T., W., and J. particularly solicit the attention of architects and builders to the fact that, by the use of this machinery, a very large saving, both of time and money, is effected,—so great, indeed, that in many cases they can deliver a well-finished article in Caen stone for less money than it can be obtained in cement, while their wood-carving will, in some cases, be found to come into close competition with the best kinds of composition ornament.—For prices and estimates apply at 154, Strand.

TESTIMONIAL FROM CHARLES BARRY, ESQ.
"Westminster, May 16th, 1848.
"Gentlemen,—In reply to your letter requesting my opinion of your Patent Carving Machinery, I have much pleasure in stating, from an experience of more than two years, in its application to the production of the wood carvings of the House of Peers, and other apartments of the New Palace, at Westminster, that I am enabled to make the most favourable report concerning it, and to add that it has more than justified the favourable terms in which I recommended it in 1843 to her Majesty's Commissioners of Woods and Works for adoption.—I remain, Gentlemen, yours faithfully,
"CHARLES BARRY."
Messrs. Taylor, Williams, and Jordan."

TO BUILDERS, CONTRACTORS, AND OTHERS.
**TO BE SOLD, for CASH, half a million,** or one million, of very PRIME STOCK BRICKS. They are situate near Hammersmith and Notting-hill. Apply to Mr. WALL, 8, Warwick-court, Holborn.

**FIRE BRICKS, STOCK BRICKS, and** RED GOODS of every description and first-rate quality. A most extensive stock always on hand.—WARD and CO., of Honduras Wharf, Bankside, London, beg to call the attention of buyers to their present low prices for cash:—Good stock, per thousand, 34s.; pickings from ditto, 31s.; best Yorkshire pantiles, 48s.; ditto plain, 28s.; Stourbridge, Welsh, and Newcastle fire bricks, lumps, tiles, clays, loams, &c. &c., malting and oven tiles, and every description of goods generally used in steam-engines, furnaces, coke-ovens, stoves, &c. &c.; Dutch clinkers, sand, gravel, red and white house sand. Country buyers will find this the cheapest market. Pattern articles made promptly.

**WILLIAMS'S PATENT SLATE** RIDGES and HIPS.—The above article is recommended, as the best and most suitable covering for Ridges and Hips of slated roofs ever invented, possessing a solid Roll of various sizes, more elegant and durable than lead, and 20 per cent. cheaper.—Sold by Messrs. J. and J. SHARP, Slate Merchants, Tooley-street, and Mr. RICHARD COOPER, Slate Merchant, Belvidere-road, Lambeth, London.

**MINTON and CO.'S ENCAUSTIC and** other PATENT TILES for Churches, Entrance Halls, Conservatories, Balconies, &c., Antique, Geometrical, and Alhambric Mosaics, manufactures of a highly decorative character and extreme durability. Slabs and Tiles for Fireplaces, Hearths, and Coverings for Grates, Door Furniture, White Glazed and Ornamental Tiles for Baths, Dairies, and Kitchen Ranges may be had in great variety at their Warehouse, 9, Albion-place, Blackfriars-bridge, London, and at their Manufactory, Stoke-upon-Trent, Staffordshire.

**GREAVES'S BLUE LIAS LIME,** WARWICKSHIRE CEMENT, and WARWICKSHIRE IMPROVED CEMENT, at RUTTY and VEREY, 3, South Wharf, Paddington; and W. and T. N. GLADDISH, Pedlar's-acre, Lambeth. The present low rates of transit enable the proprietor to send to any part of the kingdom at very moderate prices, from his works, Southam, Warwickshire.

**ROMAN CEMENT,** made according to the specification of Parker's Patent, may be had genuine of J. M. BLASHFIELD (late Wyatt, Parker, and Co.), Waterloo Dock Wharf, Commercial-road, Lambeth, No. 1, Ironsgate Wharf, Paddington, and at the Manufactory, Mill Wall, Poplar. Also Plaster, Mastic, Terras, Bricks, Tiles, &c.
VEINED AND SICILIAN MARBLE
in Seantlings and Slabs of the first quality, just imported.

**PARIAN CEMENT,** for internal stucco, instead of common plastering, may be painted and papered within twenty hours of its application to the bare walls, and by the use of which, rooms may be rendered habitable before the materials commonly adopted would begin to dry. It is worked without the slightest difficulty, the labour being easier and less expensive than with any other stucco whatever. A finer quality is also prepared for ornamental plastering, for encaustic painting, &c. &c.—Specimens of which may be seen at the works of the Patentees, CHAS. FRANCIS and SONS, Nine Elms, London.

**KEENE'S and PARIAN CEMENTS,** for internal stucco, are employed very advantageously in place of wood for skirtings, architraves, and panel mouldings, and for in-door flooring, instead of stone. The peculiar properties of PARIAN Cement allow of its being painted or papered upon within a few hours of its application, and thus render it an important substitute for common plastering in those cases where expedition and beauty of finish are essential.—J. B. WHITE and SONS, Millbank-street, Westminster, Patentees of KEENE'S Cement, Licensees of PARIAN Cement.

**PORTLAND CEMENT,** as manufactured by J. B. WHITE and SONS, possesses all the properties of the best Roman Cement, but has the advantage over that material of wholly resisting frost; and when used as a stucco it does not vegetate or turn green in damp situations, and requires no colouring. Employed as an hydraulic mortar for brickwork, it carries four to five measures of sand to one of cement, and is proved by trial to become harder and stronger in these proportions than Roman Cement with but one measure of sand. This superior cementing power, combined with its eminently hydraulic properties, point it out as the fittest material for building sea and embankment walls, the lining of reservoirs, cisterns, and baths, and for all those purposes where strength and a perfect resistance to water are required.
Manufactories—J. B. WHITE and SON, Millbank-street, Westminster, and 36, Seel-street, Liverpool.

**PORTLAND CEMENT,** solely MANUFACTURED by WILLIAM ASPDIN, Son of the Patentee.—Messrs. ROBINS, ASPDIN, and Co. request reference to No. 296, page 491; and also Nos. 294 and 295, pages 343 and 351 of "The Builder," for accounts of EXPERIMENTS on the strength of Portland Cements, whereby the great superiority of their Cement is manifest. This Cement has been proved for upwards of twenty years in the Thames Tunnel to resist the action of water; it is stronger in its cementitious qualities, harder, and more durable than any other description of Cement; it does not vegetate, oxydate, or turn green; nor is it affected by any atmospheric influence whatever the climate, resisting alike the action of frost and heat. It is manufactured to set in from five to sixty minutes. For all purposes that Cement is applicable the Proprietors challenge competition.—Orders received by Messrs. ROBINS, ASPDIN, and Company, at their Manufactory, Northfleet, Kent, and their Wharf, Great Scotland-yard, Whitehall; also by their Agent at the Depôt, 1, Back Goree, Liverpool.

**MARTIN'S PATENT FIRE-PROOF and ORNAMENTAL CEMENT—REDUCTION of PRICE.**—The Patentees beg to inform their Friends and the Public that they have made arrangements which enable them to offer this invaluable cement at a considerably reduced price. It has now been before the public so many years, and has obtained so high a standing in the estimation of all who have used it, that it is unnecessary to comment on its merits. The Patentees, however, feel called upon to observe, that by its use—from the greater amount of surface which a given quantity will cover, and the small amount of labour required in working it, a saving of 25 to 30 per cent. is effected as compared with other cements for internal use. Specimens shewing its beauty, hardness, and applicability to all plain and ornamental purposes, may be seen; and the Cement in any quantity obtained of the Patentees, Messrs STEVENS and SON, at their Plaster and Cement Works, 158, Drury-lane, London.—Agent for Liverpool.
Mr. GEORGE NEWTON, No. 6, Lawton-street, Bold-street.

**JOHN'S and Co. PATENT STUCCO CEMENT and PAINT.—GREAT REDUCTION of PRICE.**—The Patentees beg to inform the trade and the public generally, that in order to induce a more extended adoption of these excellent materials, and to bring them into direct competition with the inferior articles in common use, they have determined to reduce the price nearly 25 per cent., confidently trusting to a mutually advantageous result. These materials, for their beauty, durability, imperviousness, perfect resistance to frost or heat, and great cheapness, fully justify the confidence reposed in them, as shown by numerous testimonials. For INTERIOR SURFACES this cement possesses the following: invaluable properties; having no caustic qualities, it may be painted on or papered within a few days after its application, and a new house may thus be rendered habitable without any delay. Its never blisters, cracks, or vegetates; very soon becomes as hard as stone, and may be cleaned with a brush and water.—Prospectuses, specimens, and every information connected with its use, price, &c., may be obtained from the sole agent, PHILIP HARE, at the Warehouse, 22, Steel-yard, Upper Thames-street.

TO PLASTERERS, BUILDERS, &c.
**JOHN'S and Co. PATENT PERMANENT STUCCO WASH.**—The attention of the trade is requested to this permanent wash, which cannot be equalled in its properties of beauty and durability for exterior stucco or brick, and being a non-absorbent, is admirably adapted for interior surfaces, for railway stations, union workhouses, schools, asylums, barracks, stables, prisons, &c. It will not wash off, may be tinted to any colour, and 1 cwt. will cover 300 yards.—Price 10s. per cwt. Sole agent, PHILIP HARE, 22, Steel-yard, Upper Thames-street.

**EMERSON'S PATENT LIQUID CEMENT** is ready for use, is simple in its application, and only ONE-EIGHTH the cost of oil paint; for beauty it is pre-eminent over all other materials used on the fronts of houses, giving the exact appearance of FINE CUT STONE; can be used at once on fresh Roman cement or other plastering; is particularly calculated for country houses, villas, or gate entrances that have become soiled or dingy, which can be beautified in any weather, at a trifling cost.—Sold in casks of 1, 2, and 3 cwt., at 8s., 12s. and 21s. each.
PATENT MINERAL PAINT,
Invaluable as a coating for SHIPS' SIDES AND BOTTOMS all kinds of WOOD or METAL work, roofing felts, leaky roofs, spouts and gutters, doors, sheds, railing, and all kinds of out-door work, and being perfectly waterproof, will preserve their surfaces from atmospheric influence and decay,—requires no preparation, and will dry in a few hours.—Sold in casks, 2 to 50 gallons. Brilliant Black, 2s.; Rich Brown, 2s. 8d. per gallon.
BELL, LEAH, and Co, No. 16, Basing-lane, Cheapside.

**TODD'S PATENT PROTOXIDE PAINT,** at a very considerable REDUCTION of PRICE.—This article is extensively used by the principal Railway and Gas Companies, and by Builders and others for painting Stucco. It prevents iron from rusting, wood from decay, masonry from damp, and the hottest sun has no effect upon it.—Manufactured by CHARLES FRANCIS and SONS, Cement Works, Nine Elms, London.

TO THE BUILDING PUBLIC.
**FIRST-RATE ORNAMENTS** in PORTLAND, ROMAN and other CEMENTS, and PLASTER of PARIS, at reasonable prices, consisting of Vases, Balusters, Capitals, perforated Panellings, Cantilevers, Brackets, Trusses, Wreaths, Scrolls, Masques, Heads, Figures, Friezes, Gothic and other Chimney-Shafts, Rustic, Bed-mouldings, Paterræ, &c. &c. Centre Flowers from 10 feet diameter downwards. An assortment of Shop-front Trusses always ready for fixing.—HERBERT and SON, Modellers, &c., 42, Parker-street, Drury-lane.

**FUNERAL FEATHERS.—TO UNDERTAKERS, UPHOLSTERERS, CABINET-MAKERS, and BUILDERS.**—G. SHADBOLT and Co., Funeral Feathermen, beg to inform the trade that they have REMOVED their FEATHER BUSINESS from Church-street, Soho, to No. 9, Walbrook, City (near the Mansion House), where all orders will in future be received, and punctually attended to in town or country.
9, Walbrook, August 9th, 1849.

BUILDERS AND CONTRACTORS.

**TARPAULINS for COVERING ROOFS** during Repairs. SCAFFOLD CORD and every description of ROPE used by Builders upon the lowest terms. Marquees and temporary awnings on sale or hire. Orders per post receive the most prompt attention.—WILLIAM PIGGOTT, 128, Fore Street, City, Manufacturer, by Appointment, to Her Majesty's Honourable Board of Ordnance.

**MARKET WHARF, REGENT'S-PARK BASIN.**—Messrs. MARTIN and WOOD (late Scoles and Martin) solicit the attention of Builders, Masons, and others, to their stock of Portland, York, and Derby Stone; also Bangor Slates, Lime, Cement, Plaster, Bricks, Tiles, Laths, Fire-goods, Fire-stone, &c., sold at the lowest possible prices for Cash. Portland Headstones, Ledgers, Steps, Landings, &c., cut to order on the shortest notice. Tarpaulings let on hire. A Stock of Northen's Drain Pipes, Syphons, &c., always on hand. Mortar, Lime and Hair, Fine Stuff, &c.

**BATH STONE.—RANDELL and SAUNDERS, QUARRYMEN and STONE MERCHANTS.** The most approved kinds of Bath Freestone supplied to all parts of the kingdom. Depôts at the Great Western Railway Stations, PADDINGTON, CORSHAM, BOX, BATH, and BRISTOL.—R. and S. particularly invite the attention of Architects and Builders to their Corsham Down Stone, which is strong and sound in quality, is of beautiful colour and texture, and works much cheaper than any other stone. Prices, with cost of carriage to any locality specified, furnished on application to Randell and Saunders, 14, Orange Grove, Bath.

**ANSTONE STONE WHARF, STANGATE.**—Mr. GRISSELL has the honour to inform Architects and Builders that he has made arrangements for the SUPPLY of the ANSTONE STONE for all building purposes, and which can now be seen at the above wharf by application to Mr. W. G. WARDLE, of whom every information can be obtained.
N.B. The stone used in the erection of the New Houses of Parliament was supplied EXCLUSIVELY from these quarries.

**ANSTON STONE, used for Building the New Houses of Parliament.**—W. WRIGHT and Co. beg to inform Architects, Engineers, Builders, and others, the Anston Stone can be supplied in any quantity on the shortest notice. This valuable stone, so celebrated for its durability, colour, and texture, is well known, having been selected in preference to all others, by the Commissioners of Woods and Forests, for building the New Houses of Parliament. It is very superior for Monuments, Tombs, &c. &c.
W. Wright and Co. have made arrangements to have a stock always on hand at Brine's Marble and Stone Wharf, Horsfall-basin, Maiden-lane, King's-cross.—Any further information can be obtained on application to W. WRIGHT and Co., Anston, near Sheffield; or to T. SHARP, their Sole Agent in London, 27, Burton-crescent.

**NOTICE to PURCHASERS of CAEN STONE.**
Translation of a CERTIFICATE from the Mayor of Allemagne, Department of Calvados, Normandy, relative to the propriety of the Caen Stone Quarries:—
"I, the Mayor of Allemagne, Department of Calvados, undersigned, do hereby certify to all who are interested in it, that it is an error and gross falsehood, as certain persons have reported, 'That the quarries of Allemagne belong to, and are leased from, the Government of France, and the local authorities of the Department of Calvados.' Neither the one or the other have any right or interest whatsoever in the said land or quarries.
"I hereby further certify, that the greater part of these quarries are worked by Messrs. Luard and Company, who are the principal proprietors, and Mons. Jobert, who is also a proprietor; the remainder are worked by smaller quarrymen of the neighbourhood, who sell their produce to certain dealers for exportation to England as it is required.
"Executed at Allemagne, this 29th May, 1849.

CALVADOS MAIRIE ALLEMAGNE — J. Buisson maire

Translation attested by F. HAYNES, Esq., C.E., &c., Symonds Inn, Chancery-lane.
N.B. The French manuscript may be seen (by permission in writing) at the offices of Messrs. LUARD, BEEDHAM and Co. Copies supplied of this upon application.

**CAEN and AUBIGNY STONE.**—LUARD, BEEDHAM, and Co. beg respectfully to recommend purchasers of Caen stone to require a guarantee of those who profess to be "quarry proprietors" and importers, that they are selling only such Caen stone as is suitable for EXTERNAL WORKS,—this being the only way by which architects and builders can be safe from the recurrence of certain failure, by its indiscriminate use. It is now generally known that the bottom beds in the Caen quarries, as well as in the Portland, are only fit for inside purposes.
L., B., and Co. continue their efforts to maintain the character of their Caen stone, by careful selection, and can afford to behold without alarm the absurd, false, and futile effusions of weak-minded competitors.
L., B., and Co. have a large seasoned stock of Caen and Aubigny stone at their general depôt at Caen Wharf, Rotherhithe, Vauxhall-bridge, Millbank, Battle-bridge, Paddington, and Kensington Basins.
Shipments direct from the quarries to any port in the United Kingdom.—Offices, 18, Southwark-square, Borough, and 179, Rotherhithe-street.

**CAEN STONE, from the first Quarries of Allemagne.** Depôt at the Whitby and Scotch Wharf, 14, Fore-street, Limehouse.—P. FOUCARD, quai des Abattoirs, Caen, propriétaire de Carrières à Allemagne, begs leave to inform Builders, Architects, and others, that he has, on the above-mentioned wharf, the best stone ready to meet the demands of purchasers.—Contracts taken for any quantities.—Orders received by Mr. BASCHET, at 36, Stoney-street, Borough Market.—Cargoes shipped to order, from Caen, to any port.

**CAEN STONE DEPOT.—"ORIGINAL SUFFERANCE" NORWAY WHARF, GREENWICH.**—W. TUCKWELL, Caen Stone Quarry Proprietor at Allemagne, near Caen, respectfully solicits the attention of architects, builders, clerks of works, masons, and others, to the SELECTED STOCK of CAEN STONE on his wharf at Greenwich, and from his long practical experience in the various qualities of Caen stone, he confidently states that this Caen stone cannot be surpassed.
W. TUCKWELL has always at his chantier, on the quai at Caen, a large quantity ready for shipment when required. Orders received at the wharf, as above, also at the offices of Mr. R. A. WITHALL, Architect, 80, Cheapside, where samples and prices, with further information, may be obtained.
N.B. Samples may also be seen at the office of "The Builder."

NOTE.—The statements put forth by other proprietors of Caen Stone, induce W. T., with all respect, to observe that he cannot think of resting his claims as the owner of a superior quality of stone, on the certificates of magistrates or other public officers of Normandy, who however distinguished by character and station, can be no evidence on such matters. As the proprietor of Caen Oolite of the first quality, he trusts to the sound judgment and experience of those English architects, builders, &c., who may honour him with their preference for every guarantee and subsequent recommendation.

**IRISH SLATES and MARBLES.—SLATE SLABS.**—Upwards of 3,500 Sawn Slabs have just been landed from the Island of Valentia. A large quantity of the finest Green and Black Connemara Marble also on Sale, at the VALENTIA SLATE YARD, MILLBANK-STREET.—Some of the blocks of Black are from 12 to 20 feet in length.

**VALENTIA SLAB COMPANY.**—"The Atlas," No. 1661, SAWN SLABS.—"The Geraldine," No. 988, SAWN SLABS.—The above cargoes, of various thicknesses, now in course of delivery, at the Valentia Slate Yard, Millbank-street, Westminster.

**STIRLING'S BELVEDERE SLATE WORKS,** Belvedere-road, Lambeth.—A reduced list of prices of the best WELCH SLATE SLABS, planed both faces, will be sent on application (post paid) being made, and inclosing a postage stamp. The prices are under those advertised for inferior slates.

**PIMLICO SLATE WORKS.—GREAT REDUCTION** in the PRICE of SLATE.—Mr. MAGNUS has the pleasure to publish the following reduced prices for Welsh Slate Slabs of the finest quality, with sawn edges, and planed both faces:—

| | Thick. | | | | | | |
|---|---|---|---|---|---|---|---|
| | ¾ in. | ⅞ in. | 1 in. | 1¼ in. | 1½ in. | 2 in. | |
| | d. | d. | d. | d. | d. | d. | |
| Under 4 ft. long, or 3 ft. wide | 2½ | 5 | 6 | 7 | 9 | 12 | ☐ ft. sup. |
| Ditto 5 ft. do., or 3 ft. do. | 4 | 5½ | 7 | 8 | 10 | 14 | do. |
| Ditto 6 ft. do., or 3 ft. do. | 4½ | 6½ | 8 | 9 | 10½ | 16 | do. |
| Ditto 7 ft. do., or 3 ft. do. | 5 | 7 | 9 | 10 | 11 | 18 | do. |

Larger Slabs in proportion.

| | Thick. | | | | | | |
|---|---|---|---|---|---|---|---|
| | ¾ in. | ⅞ in. | 1 in. | 1¼ in. | 1½ in. | 2 in. | |
| | d. | d. | d. | d. | d. | d. | |
| Cutting to order ..... | 1 | 1 | 1½ | 1½ | 1½ | 2 | ☐ ft. sup. |

FURTHER REDUCTION IN THE PRICE OF CISTERNS.
Cisterns above 100 gallons, planed both faces, inch thick, grooved and bolted, 1s. only per foot super., or 2s. per foot cube (outside dimensions). Fixing within five miles of the manufactory, 3d. per foot super., or 6d. per foot cube. Enamelled boxed Chimney-pieces, variously marbled, hitherto priced at 40s. to 50s. now reduced to 25s. and 30s. The above prices are all net to the trade.
Mr. Magnus will send his book of Drawings of Chimney-pieces, and printed price-list of ditto, free to any part of the country, on receipt of 3s. in postage stamps (to be deducted from first order received,) and which will be subject to a very liberal discount to the trade.—Address, 39, Upper Belgrave-place, Pimlico.

**SAMUEL CUNDY, Mason and Builder,** PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Pimlico, begs to inform ARCHITECTS and the PUBLIC that he has availed himself of improvements in his MACHINERY, by means of which he is enabled to produce GOTHIC WINDOWS MOULDINGS, PANNELS, &c. &c., at a very cheap rate, out of a superior stone from the west of England, as durable as any soft stone, and particularly sound.
S. C. has an economical method of dressing the above stone over, which produces, by the action of the atmosphere, a surface of crystalline hardness, and improves the colour.
FONTS from 5l. upwards. Specimens on view of the various styles.
First-rate ARTISTS retained for SCULPTURED and CARVED Works.
Vein Marble Chimney-pieces, of the best quality of material and workmanship, by improved machinery 40s.
Stone ditto, from..... 8s.
A variety on view in stock.
MEMORIAL CROSSES, MONUMENTS, TOMBS, HEAD STONES, &c., in great variety of design.

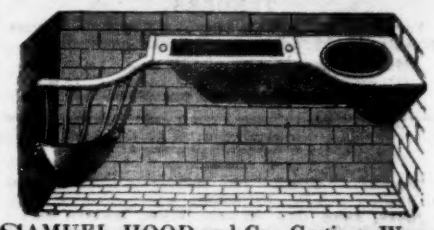
**RESTORATION of CHURCHES.** SAMUEL CUNDY having had much practice in this branch, is desirous of Estimating for Restorations.
CLERKS of WORKS have their particular attention called to the above establishment. Coats of Arms, Decorated Pannels, and other enriched works, promptly executed.
Every description of Stone or Granite work prepared, ready for fixing.—Delivered at the various Railways, and carefully packed in trucks.—Pimlico Marble and Stone Works, Belgrave Wharf, Pimlico.

**CROGGON'S PATENT ASPHALTE ROOFING FELT and INODOROUS FELT,** for DAMP WALLS. Sold in rolls, 32 inches wide, price one penny per square foot. Also, Dry Hair Felt for preventing the radiation of heat and deadening sound. Samples, directions, and testimonials sent by post, on application to CROGGON and Co., No. 2, Dowgate-hill.

**PAVING, 2s. 9d. PER SQUARE YARD.** Basements, Foot-walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of Pavement laid down at the above low price, and the work guaranteed.—Apply to JOHN PILKINGTON, POLONCEAU'S BITUMEN PAVEMENT OFFICE, 14, JOHN-STREET, ADELPHI.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

**DAMP and GASEOUS EXHALATIONS.** SANITARY MEASURES.
MEMBERS of BOARDS of HEALTH are especially directed to the most EFFECTIVE MEANS which they can adopt to prevent the injurious and often FATAL EFFECTS upon the HEALTH of the COMMUNITY, arising from exhalations that are produced from moisture, decayed animal matter (as in graveyards), stagnant water, and collections of fœtid refuse, tending to produce a miasmatic state of atmosphere. In situations so affected, the impervious quality of the ASPHALTE of SEYSSEL renders it the most perfect PAVEMENT or COVERING that can be relied upon for hermetically closing, and thereby preventing, the rising of moisture and the escape of noxious vapours. The present extensive application of this material for covering roofs, terraces, and arches, for preventing the percolation of wet, is strong evidence of its effectiveness for the above purposes, which is further confirmed by the following extract from the Report of the COMMISSIONERS on the FINE ARTS.
I. FARRELL, Secretary.
Seyssel Asphaltic Company, Stangate, London.
"In 1839, I superintended the construction of a house of three stories on the Lac d'Enghien. The foundation of the building is constantly in water, about 19½ inches below the level of the ground floor. The entire horizontal surface of the external and internal walls was covered at the level of the internal ground floor with a layer of SEYSSEL ASPHALTE,* less than half an inch thick, over which coarse sand was spread. Since the above date, no trace of damp has shown itself round the walls of the lower story, which are for the most part painted in oil, of a grey stone colour. It is well known that the least moisture produces round spots, darker or lighter, on walls so painted. Yet the pavement of the floor, resting on the soil itself, is only about 9½ inches above the external surface of the soil, and only 19½ inches, at the utmost, above that of the sheet of water. The layer of Asphalte having been BROKEN AND REMOVED, for the purpose of inserting the sills of two doors, spots indicating the presence of damp have been since remarked at the base of the door-posts."
* This method has been adopted at the new Houses of Parliament.

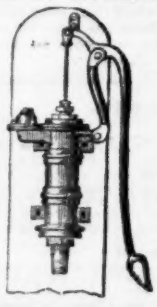
**GRAY STONE and WHITE FLAME LIME WORKS, BEWLAY CLIFF,** on the Medway, KENT.—GEORGE POTTER and CO., having added the old and well-known business at the Purfleet Wharfs, Earl-street, Blackfriars, and Camden-town, to their former town establishments, are ready to supply Contractors, Builders, Gas Companies, and the Trade generally, with Gray Stone, White Flame, and Chalk Lime, upon the usual terms. Annexed is a list of their wharfs:—
City—Purfleet Wharf, Earl-street, Blackfriars.
Pimlico—Grosvenor Basin.
Chelsea—Druce's Wharf.
Paddington—No. 19, North Wharf (adjoining Great Western Terminus).
Camden-town—James-street.
City-road Basin—Wharf-road.



**SAMUEL HOOD and Co., Castings Warehouse,** 81, Upper Thames-street. REGISTERED STABLE FITTINGS. Enamelled Mangers, with double hay-racks, or with enamelled water-cistern on one side.

TO ARCHITECTS, BUILDERS, AND BRICK-MAKERS.

**PUMPS of Superior CONSTRUCTION,** bored perfectly true by improved machinery, in various plain and ornamental patterns for Conservatories, Squares, Market Places, Ponds, Gardens, and for Liquid Manure. BRICK-MAKERS' PUMPS, in Wrought and Cast Iron. HYDRAULIC LIFT PUMPS, and ENGINES for Wells of any depth. SINGLE and DOUBLE PUMPS up to twelve-inch bore, Kept for Hire.
BENJ. FOWLER (late of 63, Dorset-street), removed to the new Factory, Whitefriars-street, Fleet-street.



TO BUILDERS AND PLUMBERS.

**THE attention of the** Trade is called to
JOHN WARNER & SONS' PATENT VIBRATING STANDARD PUMP,
which is recommended for the simplicity of its construction, and the ease with which it works.
By the introduction of the vibrating standard the cumbrous carriage and expensive slings and guides are unnecessary, rendering the price considerably less than pumps made on the old plan.
Beer and Water Engines for raising fluids from a depth not exceeding 28 feet; also, Garden Engines constructed on the same principle.
JOHN WARNER & SONS,
8, Crescent, Jewin-street, London, Manufacturers and Patentees.

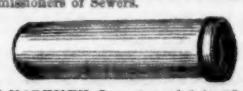
**PUMPS, WATER-CLOSETS, and PLUMBERS' BRASSWORK.**—Pan water-closets, with white basin complete, 27s. each; 2-inch lift pumps, 6s.; 2½-inch, 7½s.; 3-inch, 8s.; 3½-inch, 11s. Well pumps and cocks for plumbers and engineers, of every description.—THOMAS MILLINGTON'S Manufactory, 87, Bishopsgate Without, London.

**ECONOMIC WATER CLOSET FOR SANITARY PURPOSES.**
The advantages of this closet are:—1st. That it can be fixed in any part of a building, without reference to the situation of the cistern, there being no wire or cranks to connect it.
2ndly. By an arrangement of the valve, the water can never be left running,—thereby preventing waste.
3rdly. The basin and trap being made of iron, cannot be broken by frost, as is commonly the case with earthenware.
A Self-acting Closet, possessing the above advantages, and suitable for Railway Stations and Public Buildings, is also manufactured by STOCK and SON, Manufacturers of Plumbers' Brasswork, BIRMINGHAM.

**SANITARY IMPROVEMENT.—Perfect** freedom from Stench or Noxious Vapours arising from Sewers Drains, &c., is insured by the use of
BUNNETT'S
PATENT SELF-ACTING EFFLUVIA TRAPS.
Adapted for Streets, Public Buildings, Dwelling Houses, Factories, Stables, &c.
The above most important improvement has been extensively tried in the City, and many large provincial towns, with perfect success. They are cheap, durable, perfectly SELF-ACTING and SELF-CLEANSING, and cannot get out of order. Manufactured in various sizes, to suit all purposes, by BUNNETT and Co., ENGINEERS, 26, Lombard-street, London (where specimens may be seen in action), and at the Works, Deptford, Kent.
INVENTORS AND PATENTEES OF SELF-ACTING (DOUBLY TRAPPED)
PAN AND VALVE WATER-CLOSETS;
(A most successful combination of the above principle, with other patented improvements.)

**GLAZED STONE WARE DRAIN PIPES.**—TURNER and MOUNTAGUE, Leigh, near Southend, Essex, manufacturers of stone ware drain pipes and drain tiles. Drain pipes and tiles to any pattern.—Orders received at, and executed from Harrow-bridge Wharf, Stratford, Essex; Falcon Wharf, 80, Bankside, Blackfriars; and at their Cement Works, Orchard House, Blackwall.

**UNION BROWN STONE POTTERY CHEMICAL APPARATUS, and DRAIN-PIPE MANUFACTORY,** 14, Vauxhall-walk, Lambeth. Patronised by Her Majesty's Commissioners of Woods and Forests, and by the Metropolitan Commissioners of Sewers.



WILLIAM NORTHEN, Inventor of Salt GLAZED BROWN STONE SOCKET DRAIN-PIPES, in every variety of shape, begs to call the attention of Architects, Surveyors, Contractors, and Others to the following list of prices:—

| Straight Barrel Pipes, with Socket Joints, in 9-ft. Length | | | | | |
|---|---|---|---|---|---|
| 2-in. | 3-in. | 4-in. | 6-in. | 9-in. | 12-in. bore. |
| 4d. | 5d. | 6d. | 8d. | 1s. 1½d. | 1s. 10d. per foot |

Bends and Junctions equally low.
N.B. Drain-pipes of my Manufacture may also be obtained of Messrs. ROSHER, at their Lime Wharfs, Albion Wharf, Holland-street, Blackfriars; Millbank-street, Westminster; Kingsland Basin, Kingsland-road; and Limekiln, Limehouse; and of Messrs. MARTIN and WOOD, Market Wharf, Regent's Park Basin.

**IMPORTANT to the SANITARY MOVEMENT.—PATENT FLUSHING SYPHON BASIN and SELF-ACTING CLOSET CONNECTION.**—It is admitted by all, that nothing is more wanted than a trapped water closet, simple, cheap, and effective. The above invention will be found to combine these qualifications. It is complete in itself without expense of fixing. It has no metal spreader, metal trap, wires, or cranks. It directs the whole of the water with great force perpendicularly down the sides of the basin, clearing all before it. It is self-acting, and must cleanse itself on every time of using, without reference to the person using it, without unsealing the trap, thus rendering it particularly suited for asylums, hospitals, manufactories, &c. The price, fitted in stained woodwork, with strong well-glazed terra cotta stone pan, is only 8l. 5s.
Patentee, STEPHEN GREEN, Imperial Potteries, Lambeth, where architects, builders, and the public can inspect his invention in use. Also may be seen his

CELEBRATED TERRA COTTA STONE GLASS LINED DRAIN PIPES.

so highly approved and extensively used by her Majesty's Commissioners of Woods and Forests and the Metropolitan Commissioners of Sewers. Prices the same as common stone-ware.
For drawings and explanation see "The Builder" of January 20th, and March 31st, 1849.